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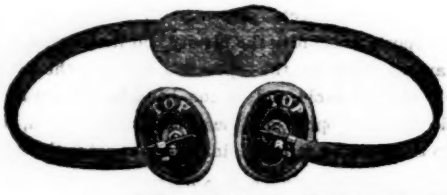

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THE SYMPATHETIC NERVOUS SYSTEM IN RELATION TO GLYCOSURIA.

MR. PRESIDENT, FELLOWS, LADIES, AND GENTLEMEN,—In this lecture I propose to discuss the question of the relationship of the blood sugar to glycosuria and the influence of the sympathetic and the endocrine glands upon them. I do not suggest that this will solve all the problems of diabetes. There is much of truth in Abderhalden's remark—

"Up to the present the most prominent symptom, that of glycosuria, has dominated the entire investigation of problems concerning diabetes, and it is very probable that this is the reason why the disease is, as a whole, so little understood."

I have long felt that it is a mistake to look upon the disease merely as a disturbance of carbohydrate metabolism because that part of the disease was first recognised.

More than two centuries elapsed between Willis's recognition of sugar in the urine and Gerhardt's discovery of the ferric chloride reaction in severe diabetes. It took some years after that before the significance of this reaction in relation to fat metabolism was realised. Still later came the recognition of the disturbed protein metabolism in diabetes; and now we are finding out that the metabolism of the inorganic salts is perverted as well.

We must look upon diabetes as a disease of metabolism as a whole, though it is probable that the history of our knowledge of diabetes repeats itself in each patient, the carbohydrate disturbance preceding the others.

Classification.—Allen's slight modification of Pollak's classification of glycosurias will serve as a basis for discussion.

A. Glycosuria resulting from renal action:
  (*a*) Without hyperglycæmia—e.g., phloridzin poisoning.
  (*b*) With hyperglycæmia, renal poisons—e.g., uranium.

B. Glycosuria resulting from hyperglycæmia:
  (*a*) Independent of glycogen content of the organs. Diabetes.
  (*b*) Dependent on glycogen content of the organ and caused by sympathetic stimulation.
    (1) Central (analogous to puncture of the fourth ventricle)—caffeine, strychnine, asphyxia, and stimulation of sensory nerves.
    (2) Peripheral—adrenalin.

ESTIMATIONS OF BLOOD SUGAR.

The centre of interest, as far as sugar metabolism is concerned, has shifted of recent years from the urine to the blood. Improved methods, such as that of Bang, allowing the blood sugar to be estimated in a single drop, have greatly simplified observations on this point.

The normal percentage of blood sugar may be taken as 0·1 per cent., and the chief variations in this amount, according to Schirokauer, occur in the red corpuscles, the serum sugar being fairly constant. This percentage is approximately maintained through prolonged starvation, almost up to death. Graham[2] showed that 100 g. of dextrose taken by the mouth would produce a sudden rise in the blood sugar within 10 minutes, usually reaching its maximum in 20 minutes, and returning to its original level in 1 to 5½ hours.

The level which the blood sugar has to reach before it appears in the urine shows considerable variation in different individuals. As Graham puts it, some have a high and others a low leak-point. In diabetes hyperglycæmia will persist long after the glycosuria has been controlled, and may remain at a figure such as 0·25 per cent., which in an ordinary individual would inevitably excite glycosuria, as if the kidneys had acquired a diminished permeability for sugar.

The importance of blood sugar estimations in diabetes is therefore clear. Further, they had led to the recognition of glycosuria with hypoglycæmia, which at once recalls the experimental condition of phloridzin glycosuria. On this analogy such cases have been called renal glycosuria, though it is by no means clear that such a term is correct.

RENAL GLYCOSURIA AND DIABETES INNOCENS.

The first case of the kind described by Klemperer in 1896 had renal disease, but, as suggested in the classification, renal lesions may lead either to increased or diminished permeability of the kidney to sugar, and hypoglycæmia may be followed by hyperglycæmia. It is probable that many of the remedies, such as uranium, which have been employed to diminish glycosuria really do so by damaging the kidney. Nephritis is often accompanied by hyperglycæmia. On the other hand, some forms of nephritis may be associated with glycosuria and hypoglycæmia, and to such cases the term renal glycosuria might fairly be applied.

Thus, I remember sending into Sir Wilmot Herringham's wards an elderly man with chronic interstitial nephritis, glycosuria, and marked retinal changes. The blood sugar was found to be definitely subnormal, and the retinal changes were regarded by the experts as typically those of nephritis. But quite apart from obvious renal disease, there is a condition of hypoglycæmia with glycosuria. It was defined thus by Sir Archibald Garrod in 1912, in his Lettsomian lectures:—

"Persistent slight glycosuria in which small quantities of sugar are continually present in the urine, in which variations of diet have little or no effect on the output of glucose, and in some of which the quantity of sugar in the blood has been shown to be rather diminished than increased."

To this definition may be added the fact that in such cases only 1 per cent. to 2 per cent. of the ingested sugar is excreted. The following is an example:—

A schoolmaster, aged 35 years, was sent to me because sugar was found in his urine just before he was going to be operated upon for varicose veins. He felt quite well except that ever since he was 12 he had had occasional fainting attacks. The amount of sugar in the urine varied between 1 and 2 per cent. On a restricted diet he lost flesh, but the sugar in his urine was unaffected. There was no sign of disease of any ductless glands. Dr. Mackenzie Wallis estimated the blood sugar and found it was as low as 0·062 per cent.

Salaman, in 1914, gave the name of "diabetes innocens" to the condition, and found that the level of the blood sugar was not affected by 100 g. of dextrose. Graham has recently described another variety of diabetes innocens.[3] The amount of sugar excreted is higher, 20 to 50 g. in the day, and the percentage may be as high as 5, instead of only 1 to 2. The effect of a dose of sugar is also greater, as from 7 to 17 per cent. of it is excreted, instead of 1 to 2 per cent. Lastly, the level of the blood sugar is rather higher than that of a normal individual after a dose of sugar. But, though the condition occurs in young people, it is, apparently, non-progressive. He thinks it is probable that in diabetes innocens the presence of sugar in the urine is due to an increased excretion on the part of the kidney. In the pure diabetes innocens of Salamon this is, apparently, the only lesion. But in Graham's type this is combined with a diminished carbohydrate tolerance.

Two Illustrative Cases.

I recently saw a case of this kind in a lieutenant of the Royal Navy, aged 20.

Sugar was found in the urine when he was in hospital for dysentery and a gunshot wound. Surgeon Geoffrey Evans, R.N., who sent him to me, reported that a slight reduction in the carbohydrate intake had no effect on the sugar

[1] Lectures I. and II. were published in THE LANCET of May 17th and 24th, 1919.
[2] Journal of Physiology, 50, 283.
[3] Quarterly Journal of Medicine, 1917, x., 245.

excretion, which amounted to 10 to 15 g. a day. On withdrawal of all carbohydrate the urine was free from sugar. But on adding 2 oz. of bread or potato to the diet a small amount of sugar at once reappeared. He was passing 12 g. a day on a very slightly restricted diet when I saw him. I put him on a diet containing 104 g. of carbohydrate, and of these only 4 g. appeared in the urine. At no time did he have any symptoms referable to his glycosuria. He was not wasting, and felt quite well. Unfortunately, it was not possible in this case to get an estimation of the blood sugar. An interesting and important point was that his father had a temporary glycosuria when 28, which cleared up entirely. Of the 18 cases referred to in Graham's paper the familial element was shown by 7 cases, belonging to three families, and 3 other cases had parents or brothers or sisters similarly affected.

Another similar case is at present under my care.

A man, aged 29, had sugar found in his urine three years previously. It was intermittent, and the highest estimation was 4 g. per litre. Since March, 1917, I have only once found a trace of sugar. He is at present taking at least 70 g. of carbohydrate a day, and the blood sugar is normal—0·104 per cent. He never had a thirst or polyuria, and he has not lost weight.

Time alone will show whether these are very early cases of true diabetes, or whether—as I think more probable—they are instances of non-progressive "diabetes innocens."

An Intermediate Type of Case.

But it is not safe to assume from hypoglycæmia alone that the case is non-progressive. The following is an intermediate type of case.

A man, aged 38, had sugar discovered in his urine when examined for life insurance in 1912. Further examination showed this sugar to be dextrose. He felt perfectly well and had not been absent from business through illness for six years. He could play cricket, swim, and cycle without inconvenience. In the three years following his rejection for life insurance his weight increased from 10 st. 9 lb. to 11 st. 4½ lb. His blood sugar in 1914 was only 0·04 per cent., yet he was not a typical example of renal glycosuria, as the amount of sugar in the urine on one occasion rose to 9 per cent., and to some extent he responded to dieting. Towards the end of 1915 he began to lose weight and to have symptoms of neuritis. Dr. Mackenzie Wallis kindly repeated the estimation of the blood sugar and found it had risen to 0·142 per cent. Thus, from being hypoglycæmic he became hyperglycæmic.

This case justifies the attitude I have always adopted in renal glycosuria: that until we know more about it it is well, as a precautionary measure, not to allow the patient to take carbohydrates freely, lest the mechanism for dealing with their metabolism should be really affected, and therefore capable of further damage by carbohydrate excess. This patient was careful about his diet for a time, but as he felt so well he admitted that he became careless and took carbohydrates freely. He appeared to be passing into the ordinary type of diabetes. Fortunately he took his case more seriously after this and was more cautious. Relaxation was practised gradually after a time, and at the beginning of 1918 he was taking ordinary diet without glycosuria appearing. Since then, no doubt unduly encouraged by this, he has had occasional returns of sugar on too liberal a diet.

At the same time, we can safely allow the patient with hypoglycæmia more latitude than the ordinary case. The best indication is his weight. If this falls, while the glycosuria persists, even though at a low level, he is being dieted too strictly. He probably cannot be rendered free from sugar by the strictest diet, though his general health will suffer.

The following case shows that glycosuria with hypoglycæmia may undoubtedly pass into typical diabetes.

A man in whom sugar was found accidentally in 1909, when about 30 years of age, came under my care in 1914, when his blood sugar was found to be 0·089 per cent. But as towards the end of 1915 he was losing flesh and not feeling well, the blood sugar was again estimated and found to be 0·305 per cent. He was admitted to hospital, and though his blood sugar fell to 0·12 per cent. he was only got free from sugar on one occasion. When he left hospital his blood sugar was 0·18 per cent. In spite of careful treatment he continued to waste, with much glycosuria and acetonuria. Early in this year I again took him into hospital, and on a repetition of treatment by alimentary rest I got a much better result than on the previous occasion, and at the present moment his urine is free from sugar and acetone.[4]

[4] He subsequently relapsed and died from coma early in 1919.

On our present conception it is difficult to explain how hypoglycæmic glycosuria can pass into true diabetes. Probably if the blood sugar were estimated at different times in the day, both before and after meals, we should find that the hypoglycæmia was not a constant feature.

Allen's Conception of Diabetes.

Allen's conception of diabetes is a definite entity sharply contrasted with all other forms of glycosuria. The interest aroused by the practical results of Allen's method of treatment has overshadowed his theoretical conceptions based on experiments. Yet these are important in themselves, and necessary to the appreciation of his therapeutic conclusions.

He boldly defines diabetes mellitus as the condition resulting from the reduction of what he calls pancreatic amboceptor below the requirements of normal metabolism. He bases this mainly on the anti-diuretic effect of parenterally administered dextrose and his paradoxical law of its assimilation in the non-diabetic, even though glycosuric, organism as opposed to the diabetic.

In diabetes, he maintains, dextrose takes on a new and uniform behaviour, while other sugars behave as in the normal organism. Dextrose is then a diuretic, however given—intravenously, orally, subcutaneously, or intraperitoneally. In the non-diabetic dextrose is a diuretic when given intravenously, unless in a small enough dose to permit prompt combination with something else, in which case the quantity of urine will be diminished, as Pavy and Godden showed. It is an anti-diuretic when given in any other way.

Assimilation of Sugar by Diabetic and Non-diabetic.

Give sugar to a diabetic and the typical result, along with hyperglycæmia, is polyuria and glycosuria, representing a considerable quantity of sugar. Give sugar by the mouth to a non-diabetic sufficient to cause the same hyperglycæmia as in the diabetic, and the result is an insignificant excretion of sugar with oliguria. Increase the dosage, so as to increase the hyperglycæmia, and thus attempt to cause an excretion of sugar by the non-diabetic equal to that of the diabetic, and the result will be increased oliguria, and, in the most extreme cases, albuminuria or anuria. Give the sugar intravenously in large doses, the non-diabetic shows no more injury than does the diabetic, he excretes sugar actively, with polyuria.

Sugar in diabetes, therefore, acts as a typical crystalloid. In the non-diabetic it behaves as a typical colloid, except when given intravenously, when it acts like a crystalloid, just as in diabetes. He states his paradoxical law as follows:—

"If, with a given dose, any utilisation of a carbohydrate occurs at all, an increase of the dose causes the utilisation of a larger quantity."

And he illustrates it thus:—

"Give the sugar by any route; increase the quantity at pleasure; it is possible by sufficient dosage to kill the animal, but it is not possible to cause more than a fraction of the whole to be excreted in the urine. ..... In the non-diabetic the limit of assimilation is only apparent; in the diabetic it is real. This furnishes a distinction between diabetes and every other form of glycosuria."

The Limits of Sugar Tolerance.

The fact that some sugar appears in the urine does not imply, apparently, that no more can be utilised, but merely that the method of utilisation cannot be brought quickly enough into play to prevent some escape. When we say, therefore, that the tolerance for dextrose is 150 to 200 g. as a single dose, we only mean that above this point a small fraction of the ingested sugar escapes before it can be dealt with. We can therefore understand why, in the normal individual, glycosuria ex amylo cannot occur. The time occupied in its digestion and absorption prevents the escape of any of it into the urine.

Allen would therefore, I presume, be prepared to accept Naunyn's dictum that anyone who passes sugar after free ingestion of starch is virtually a diabetic. Anything which increases the rate of carbohydrate digestion and assimilation increases glycosuria. If there is any lowered carbohydrate tolerance, the more slowly carbohydrate is presented to the tissues the better. This probably accounts for the rectal

utilisation of sugar in diabetes (Foulkes), and explains why malted foods increase glycosuria more than ordinary starch in such circumstances.

It is better to express this apparent limit of sugar tolerance as a fraction of the body weight. It is usually given as 2·5 g. per kg. (i.e., 0·25 per cent.) of the body weight. Allen puts it as 2 to 4 g. per kg. when given by the mouth and 1 to 1·5 g. per kg. when given subcutaneously. This is a lower level of tolerance than that found in most animals, and it is still lower in infants, reaching the adult level at the age of 10.

The limit of tolerance for different sugars varies, but apparently no sugar (unless intravenously injected) circulates in an absolutely free state in the non-diabetic organism. We know that when disaccharides are injected intravenously they are quantitatively excreted, the body being, apparently, unable to deal with them unless and until they are broken down into monosaccharides. The normal organism shows towards parenteral lactose that entire inability to utilise it which the "totally" diabetic organism shows towards dextrose.

In what form, then, do *monosaccharides circulate in the blood?* Some years ago Pavy adapted Ehrlich's side-chain theory to explain this. He maintained that there was no such thing as impermeability of the kidney to sugar. Where a molecule of water would go a dissolved molecule of sugar, no so very much larger, must be able to follow. He regarded the internal secretion of the pancreas as providing an amboceptor which linked the dextrose molecule on to larger colloidal molecules. Though all of Pavy's views on diabetes have been by no means generally accepted, this idea is steadily gaining ground.

PANCREATIC DIABETES.

It will, therefore, be convenient to discuss first the glycosuria which depends on a frank pancreatic lesion, and then to compare it with other forms.

It is unnecessary to detail Minkowski's classical experiments on dogs, which showed that extirpation of sufficient pancreatic tissue caused glycosuria, and that removal of a less amount lowered carbohydrate tolerance. If sufficient glandular tissue were left it could still exert its control, even if its connexion with the duodenum be severed. Sandmeyer made the further interesting observation that the pancreatic remainder tended to atrophy, so that in time a secondary diabetes followed when the remnant was originally only just large enough to check immediate glycosuria.

In repeating Minkowski's experiments Allen found, as opposed to various uncertain and discrepant results, that severe diabetes regularly occurred in the dog when the remnant was only one-tenth of the gland, and frequently when it was larger. The dog thus provides an admirable subject for observations on experimental diabetes.

Entry of Sugar Amboceptor into the Blood.

The position of the pancreas in the portal circulation would make it a favourable source for the sugar amboceptor, for as the sugar streams up the portal vein on the way to the liver it must meet the internal secretion entering by the pancreatic vein.

Hédon's experiments on cross circulation show the importance of the amboceptor entering the blood at this point. He found that if he passed the carotid blood from a diabetic animal through the normal pancreas into the jugular vein, there was no effect on the glycosuria, but if blood from the splenic artery of a diabetic animal were passed through the normal pancreas and returned by way of the splenic vein, the glycosuria fell to a very low figure, and remained there for several hours. He had previously shown that the intravenous injection of serum from the pancreatico-duodenal vein of a normal dog had no influence on the glycosuria of a depancreatised dog unless it was slowly injected into the mesenteric vein, so as to enter the portal circulation directly. Then the glycosuria diminished almost to zero, and remained low for several hours.

That is to say, the blood had to be passed through the portal area for the sugar to be attached to the protein. Yet there can be very little amboceptor in the blood at any given moment, since intravenous injection of sugar is the quickest and surest way of inducing glycosuria.

Combination of Pancreatic Amboceptor with Sugar.

As sugar enters into combination when introduced orally, subcutaneously, and intraperitoneally, the only factor common to the three is the capillary endothelial wall. Allen believes that this is the site of combination, and that the stock of amboceptor is, presumably, replenished from the small supply constantly carried by the blood. He suggests that a similar process provides for the assimilation of sugar by the tissue cell. Sugar approaching a cell probably encounters a denser stratum of amboceptor, and thus is firmly retained, being built up into the colloid protoplasm through increasingly firm colloid combinations.

Knowlton and Starling's experiments on perfusion through the dog's heart seemed to show the influence of this pancreatic amboceptor in promoting the utilisation of sugar by the heart muscle. Their results may be expressed in tabular form:—

On perfusing the heart of a—	With blood from a—	Sugar consumption—
Diabetic	Diabetic	Is diminished or absent.
Normal	Diabetic	Is diminished.
Diabetic	Normal	Occurs.
Diabetic	Diabetic + boiled pancreatic extract	Occurs.

Here normal blood or diabetic blood enriched with pancreatic amboceptor enabled the heart muscle of a diabetic animal to utilise sugar.

Clarke [5] has extended these observations, with interesting results. He finds that when a fluid containing dextrose is perfused through a pancreas its dextro-rotatory power diminishes, while its reducing power remains unaltered. Presumably, then, it is converted into some combination which is easily broken up in the process of reduction estimation. When this fluid is circulated through a living heart the dextrose still further disappears from the circulation.

Even without this pancreatic factor the normal heart can utilise either dextrose or levulose. But on the addition of pancreatic perfusate, there is an immediate and rapid utilisation of dextrose, in preference to the levulose. This explains several things. In the first place, it points to the dextrose entering into some combination as the result of circulating through the pancreas. It also shows that when there is pancreatic insufficiency, the body can burn dextrose and levulose to a certain extent. It further explains why the diabetic can utilise levulose, though only to quite a small extent.

SECRETIONS OF THE PANCREAS.

Whether the pancreas as a whole supplies the internal secretion, or whether its cell islets alone are responsible, has been much disputed, but opinion is tending to the latter view.

Both acini and islets may be formed from the ducts at any stage of existence. But whether fully-formed acini can be converted into islets, or vice versa, is more doubtful. Dale found by exhausting the gland with repeated secretin injections he could apparently greatly increase the amount of islet tissue, and regarded the islets not as independent structures, but as formed by changes in the arrangement and properties of ordinary secreting cells. In that case it would be improbable that they had special functions. But most observers believe that he confused exhausted shrunken acinar cells with islets.

Bensley denies that such mutual transformations are seen in the normal pancreas, though admitting the unproved possibility under some conditions. He describes an intricate arrangement of tubules by which the great majority of islets stand in permanent relation with the ducts. This and the wide tortuous capillaries or sinusoids with which they are supplied, together with the different position of the islets in different animals, all suggest that they are permanent structural elements in the gland.

Nichols, Helmholtz, and Cecil have all recorded tumours of the pancreas apparently composed solely of islet tissue. This has been interpreted in favour of the independence of islet and acinar tissue, but it seems to me that it might equally well be explained as due to degenerative changes in the malignant cells, to which they are known to be prone. But, on the whole, the evidence may be regarded as against the view that normally the cell of one type is transformed into the other type.

After all, this does not prove where the internal secretion is formed. In the liver we do not find certain bile-producing cells and other glycogenic cells, but all the cells seem

[5] Johns Hopkins Hospital Bulletin, February, 1918, No. 324, p. 45.

equally concerned in the internal and external secretions. Noel Paton found that, although cell islets are well developed in the duck, the pancreas plays no important part in regulating its sugar metabolism, for excision of the gland does not cause glycosuria.

Condition of Pancreas in Diabetes.

The point has more than an academic interest. If it could be shown that in all cases of diabetes there were changes in the cell islets, an important step would have been taken towards establishing the view that the disease always has a pancreatic origin.

Opie strongly supports this view. He claims that the more selective the influence of a lesion upon the islets, the more likely is it to cause glycosuria. Thus interstitial pancreatitis may be interlobular or interacinar. The latter soon affects the islets, which lie deep within the lobules, whereas the former has to be far advanced for the islets to become involved. Corresponding to this, he finds the interacinar form is much more frequently associated with glycosuria than is the interlobular. Hyaline degeneration, too, which he describes as particularly liable to affect islets, he believes to be specially apt to produce glycosuria.

Allen is not prepared to go so far as this. He agrees that experiments on the pancreas show that whether glycosuria follows or not depends on whether the islet tissue is, or is not, degenerated. But he admits that these changes may be absent in the spontaneous disease: "The average diabetic has almost as good a pancreas as normal" is his conclusion.

Antagonism between Internal and External Secretions of Pancreas.

If we adopt his view that pancreatic and spontaneous diabetes differ from all other forms of glycosuria in that dextrose now acts as a crystalloid owing to loss of the pancreatic amboceptor while admitting the structures which form that amboceptor may be intact in spontaneous diabetes, we are forced to conclude that they ceased to act owing to some nervous action or inhibition. Whether right or wrong, this view has paved the way to an important advance in therapeutics, for he bases the rationale of the fasting method of treatment on an antagonism between the internal and external secretions of the pancreas.

Various observers have noted that if diabetics are fed with pancreas there is an increase of glycosuria. But Reach showed that any raw meat had a similar effect. Indeed, it would appear, from Cohnheim's and Klees's experiments, that all foods (except fats) which excite pancreatic external secretion increase glycosuria.

On the other hand, Allen found that relief from the duty of external secretion appeared to permit of a more continuous production of internal secretion. In the experimental disease Allen found that conditions which regularly produce severe diabetes when the pancreatic duct is patent, regularly fail to do so when the duct is tied at the primary operation. Also that sometimes a secondary ligation may check glycosuria which has already begun.

There is, then, a sort of antagonism between internal and external secretion. Treatment by alimentary rest means that the lessened work thrown on the external secretion helps to restore the internal secretion. I think, therefore, that the practical benefits of the fasting treatment may be regarded as supporting the pancreatic origin of spontaneous diabetes.

ORGANIC LESIONS OF PANCREAS.

Clinically, an organic lesion of the pancreas produces other effects besides glycosuria. Defective external secretion is indicated in the fæces by (*a*) the presence of undigested muscle nuclei after a meat meal; (*b*) the presence of starch grains after unboiled starch has been given; (*c*) and the presence of excess of neutral fat. Of these the last is the most striking. The intestinal fermentation of carbohydrate may lead to oxaluria (Cammidge).

The diastatic ferment which fails to reach the bowel will be reabsorbed into the blood-stream, and will reappear in the urine. Normally there are some 10 to 30 units of diastase in the urine. In acute obstructions to the duct this may be increased to 300 units or more—in one case of mine it reached 1000—while in chronic obstructions figures of 64 to 128 are more usual. The Wolgemuth technique has been followed in my cases.[6]

[6] See Corbett: Quarterly Journal of Medicine, 1913, vi., 351.

The dilatation of the pupil within 20 minutes to one hour after instillation of two separate drops of liquor adrenalin hydrochlor., with an interval of five minutes between them, is considered by Loewi to be another sign pointing to insufficiency of the pancreas. He noted this occurred in de-pancreatised animals, and referred it to a loss of balance between the antagonistic internal secretions of the adrenal and pancreas. But I have seen this test positive when the pancreas was not involved, and negative when it was. So that it cannot be regarded as satisfactory, especially at a time when the polyglandular doctrine is on its trial.

Disintegration of pancreatic substance may result in the appearance of a pentose-like body in the urine, probably derived from the pancreatic nucleo-protein. Cammidge's reaction appears to depend on this substance. But I note a diminishing tendency to rely on this reaction. Symptoms of pressure on the bile-duct and of irritation of the solar plexus may also occur. Hyperchlorhydria may result from deficient secretion of alkaline pancreatic juice and pyloric spasm will be excited.

Of all these signs I have come to rely most on the excess of neutral fat in the stools, and of diastase in the urine.

A Case of Pancreatic Origin.

Now, it sometimes happens that a case of diabetes may start with pancreatic symptoms, which subside while the glycosuria progresses. Thus, if the case was not seen in its early stages its pancreatic origin might be missed. As an example of this I may quote the following case:—

A lady, aged 31, was sent to me in April, 1915, with the history that in January of that year she had had a "chill," followed by severe digestive symptoms. For five days she vomited everything, and rectal feeding was resorted to. After this she was seized with insatiable thirst, and sugar was found in the urine. On dieting and codeia the glycosuria soon cleared up. But she relaxed her diet rather quickly and sugar returned, at first intermittently and then continuously, later with diacetic acid. When I first saw her the blood sugar was 0·299 per cent. and her diastase 50 units. Taken in conjunction with the history, this points strongly to an attack of pancreatitis. She was dieted on the basis of determining her sugar tolerance and keeping within this. For most forms of carbohydrate this was only 30 g. a day. At the same time she was given aspirin and hexamine, as these antiseptics are known to be excreted by the pancreatic ducts. Gradually she improved; the diacetic acid went and then the sugar. She gained weight rapidly and kept free from sugar and diacetic acid until November, 1915, and although under treatment this improvement was maintained for a time, she ultimately went down-hill and died in 1917. This was the more disappointing since examination in January, 1916, had shown that the pancreatic diastase had returned to the normal level, 25 units. The blood sugar, however, remained above normal, 0·209 per cent. In the later stages of this case there would have been no reason to have suspected a pancreatic origin.

Other Illustrative Cases.

In the following case the recovery of carbohydrate tolerance preceded the return of the urinary diastase to normal.

A man, aged 31, had been refused for life assurance two years previously on account of glycosuria amounting to 6 to 7 per cent. He suffered from thirst and polyuria, and was losing flesh. He had been put on to a diet which affected the sugar very little. He then put himself on the Salisbury treatment for six weeks and greatly reduced the sugar by that, but lost flesh and did not feel well. After that, however, the sugar continued to diminish, and when I saw him there was no sugar, even to Nylander's test. More important, the blood sugar was below normal, 0·06 per cent. As, however, the diastase in the urine was high—50 units—I presumed that the case originated from a pancreatic lesion. I gave him a test diet of 100 g. of carbohydrate, on which no sugar came through. I then gave him 200 g. of carbohydrate in the day, still without any glycosuria resulting. Evidently he had a marked, though temporary, glycosuria, apparently depending on a pancreatic lesion.

Temporary pancreatitis need, of course, produce no glycosuria. The following case, which I saw recently, illustrates this:—

A man, aged 41, who had been an engineer in India for 21 years, began five years ago to suffer from dyspepsia, with what he described as a dull sickening feeling in the epigastrium, which became almost continuous. There were also irregular pains in the right side, under the ribs. He had hunger-pain. In April, 1916, he noticed that he was losing weight, and he was advised to eat more fat. In

October, 1916, he noticed that he began to pass white firm lumps in the fæces, rather angular, almost faceted. He brought some of these lumps for examination, and they were found to consist of a fat with a melting-point of 47° C. and a little cholesterol. Dr. Hurtley, who kindly made the analysis for me, was of opinion that this fat was due to the patient eating margarine, but that a normal person would naturally be expected to be able to absorb such a fat. At the present time, however, not only is he passing no such fat, but Dr. Hurtley found that the total percentage of fat and fatty acids in the dry fæces was 13·4—i.e., well within the normal limits.

Further interesting points were that the diastase units amounted to 128, and that there was a reducing substance in the urine which was not dextrose, but, in Dr. Hurtley's opinion, was a pentose obtained from nucleo-protein. He regarded this as probably the same substance as that responsible for Cammidge's reaction. It will be noted that the stools are now normal, but that the pancreatic diastase is still raised; and the presence of this unusual reducing substance suggested that pancreatic disintegration was proceeding.

Such a case is liable to develop the Sandmeyer type of diabetes later on. I am glad to be able to add, however, that at the present time the patient appears quite well, and there are no signs of the pancreatic disintegration proceeding.

The Question of a Nervous Factor.

Of pancreatitis causing frank and obvious disturbance of both external and internal secretions I need not give examples. My point is to show that the evidence of the pancreatic origin of a case of glycosuria may be slight and temporary. Yet when an ordinary case of diabetes reaches post mortem and shows, as many do, a histologically normal pancreas, we are not justified in assuming that it belongs to the above group. In ordinary diabetes the diastase is not raised; indeed, largely owing to the polyuria the percentage of units is generally low. All the other signs of pancreatic disease may have been negative throughout.

If we are to claim that all diabetes is pancreatic in origin, as Allen does, it is necessary to assume with him that some nervous action is involved. He believes such an action would be of central rather than peripheral origin, irritative rather than paralytic, and, presumably, affects the gland through the sympathetic. Now we do not regard the pancreas as being specially sensitive to sympathetic control. Indeed, its external secretion seems to be chiefly dependent on chemical stimuli. The other glands which influence carbohydrate metabolism are far more sensitive to sympathetic stimulation, and this is where the polyglandular doctrine would help to explain things. But before discussing this hypothesis it will be well to consider certain other endocrine glycosurias.

PITUITARY GLYCOSURIA.

Over-secretion by the pituitary gland always lowers the tolerance for sugar, and may excite a frank glycosuria. It appears to be the pars intermedia which is responsible for this. I will give two examples of glycosuria of pituitary origin.

A lady, aged 63 years, was sent to me with the history that four weeks before her sight had failed and she noticed a "spot" in her right visual field. Sugar was found in the urine and the defective eyesight had been referred to this. In the past history the only significant thing was that for the last year she had suffered from pains in the neck and shoulders. I found that the urine contained only 0·5 per cent. of sugar and no diacetic acid.

It hardly seemed likely that such a mild degree of glycosuria was responsible for her failing sight, particularly as there were no retinal changes. There was a great contraction of the field of vision in the left eye; on the nasal side there was only macular vision, while the temporal side showed considerable reduction. Central vision was fairly good. In the right eye central vision was very defective, but there was not nearly so much reduction of the field of vision; such as it was only affected the nasal half. Now, bitemporal hemianopia is the usual visual defect in acromegaly, but in view of the glycosuria with binasal hemianopia I was not surprised that an X ray examination of the skull showed a definite enlargement of the pituitary fossa, and a shadow, differing in intensity from that of the surroundings, could be seen invading the base of the brain.

The Wassermann reaction was negative. Her glycosuria soon cleared up with moderate dietetic restrictions, and there was some improvement in vision on administration of potassium iodide. The pituitary growth must be quiescent, as she is no worse, four years after its recognition.

The complaint of pain shooting down the neck into the shoulders is, I think, commonly made by sufferers from a pituitary growth. The combination of this with glycosuria and a marked alteration of visual fields should lead us to suspect the pituitary body. Optic atrophy and interference with the third or sixth nerve may occur, but retinal hæmorrhages or white patches, such as are seen in ordinary diabetes, are not likely. A central scotoma for red and green is met with in diabetics who are smokers, but unlike tobacco amblyopia it does not clear up. The ophthalmoplegia which occurs in ordinary diabetes is due to neuritis, and generally clears up with dieting. The ocular signs in pituitary glycosuria are, therefore, usually quite distinct from the ocular complications of diabetes.

A woman, aged 42, was sent to me at St. Bartholomew's Hospital by Dr. Herbert Williamson from the gynæcological department because she complained of pruritus vulvæ, and sugar was found in the urine. There was no diacetic acid. Her general aspect suggested acromegaly, and this was supported by the growth of hair on her cheeks and the raised blood pressure (170 mm.). This was confirmed by an X ray examination, which showed the pituitary fossa to be enlarged. I commented on the fact that she had amenorrhœa, which is not common in hyperpituitarism. The reason for this soon became obvious: she was pregnant, and she subsequently developed hydramnios. The sugar at first yielded to dietetic restrictions, but as the pregnancy progressed it became less amenable. The occurrence of hydramnios is interesting, as it is a common complication of pregnancy in true diabetes. Yet pregnancy is not very likely to occur in diabetics of 42. Ultimately she was successfully delivered of a living child, after which she remained free from sugar on ordinary diet.

This case is of exceptional interest because it shows features common to pituitary glycosuria and true diabetes. The conclusion would appear to be that her pregnancy stimulated a pituitary already tending to be too active, and it was only during this extra stimulation that carbohydrate tolerance was lowered sufficiently to excite glycosuria.

Glycosuria Resulting from Stimulation of Pituitary.

That the sympathetic nervous system can produce glycosuria through stimulation of the pituitary was clearly shown by Weed, Cushing, and Jacobson.[7] We know that the main glycosuric effect of Bernard's puncture of the fourth ventricle is due to irritation thereby of the splanchnic nerve-supply to the adrenals; but part, at any rate, may be attributed to the pituitary, for after section of the spinal cord at a level above the origin of the splanchnic nerves, puncture will still excite glycosuria if glycogen is present in the liver. It evidently acts through the superior cervical ganglion, as direct stimulation of this structure will excite glycosuria after exclusion of all possible downward impulses to the abdominal viscera by section or by paralysing all preganglionic endings by means of nicotine. On the other hand, if the posterior lobe of the pituitary with the pars intermedia has been previously removed, stimulation of the superior cervical ganglion has no effect.

The fact that nicotine does not abolish such glycosuria shows that the immediate stimulus to its occurrence must be chemical. Post-ganglionic nerve endings in the pituitary must excite the formation of some hormone which induces glycosuria, for a nervous reflex would be cut out by nicotine. But, equally clearly, outpouring of that hormone is effected by sympathetic stimulation, just as we saw, in the first lecture, that the thyroid secretion could be excited through the sympathetic.

THYROID GLYCOSURIA.

Thyroid extract is known to excite glycosuria. I have noted this particularly when quite small doses have been given with the object of improving the circulation, as in cases of cerebral thrombosis. In Graves's disease there is a lowered tolerance for sugar and sometimes frank glycosuria, while in myxœdema there is an extraordinary increase in sugar tolerance, which may be reduced by the administration of thyroid extract. The following case of glycosuria I regard as of thyroid origin.

A lady, aged 33 years, was sent to me with the history that in September, 1913, when six months pregnant, she was troubled with pruritus vulvæ, and large quantities of sugar were found in her urine. On a rigid diet the sugar gradually disappeared. At the same time the thyroid was noticed to be enlarged; the eyes had always been rather prominent.

[7] Johns Hopkins Hospital Bulletin, xxiv., No. 264, February, 1913.

She sometimes had palpitations, and it was found that she occasionally dropped a beat. She kept free from sugar until September, 1914, when being again pregnant she took some drug with the object of inducing a miscarriage. She succeeded in her object, whether because of the drug or not I cannot say. Unfortunately for her, sugar promptly reappeared in her urine, and has been present, on and off, ever since. Moreover, her cardiac symptoms increased, and in June, 1915, a mitral systolic murmur appeared. It was rasping in character and clearly organic in nature. She was also troubled with attacks of diarrhœa.

The combination of enlarged thyroid, tachycardia, valvular disease, glycosuria, and diarrhœa, can be explained by Graves's disease, and, as far as I can see, by nothing else. Other thyroid enlargements are not associated with endocarditis and diarrhœa, so that although there were not ocular signs or tremors I considered this to be a case of hyperthyroidism in which sugar tolerance was lowered out of proportion to the other signs. The fact that it first came on during pregnancy supports this idea, for the glycosuria of pregnancy is most probably due to the well-known influence that pregnancy exerts on the thyroid or pituitary. The blood pressure in this case was only 110, which is very much against the pituitary being involved.

The glycosuria, as distinct from the lactosuria, of pregnancy is probably due to the stimulating effect of pregnancy on the thyroid and the pituitary.

ADRENAL GLYCOSURIA.

Although there is experimental evidence that glycosuria can be excited by excess of adrenalin, there is very little clinical evidence of a definite adrenal diabetes. Emotional temporary glycosuria is naturally regarded as due to excessive adrenal stimulation through the sympathetic, and cases of slight and temporary glycosuria in soldiers suffering from shell-shock are probably of this class.

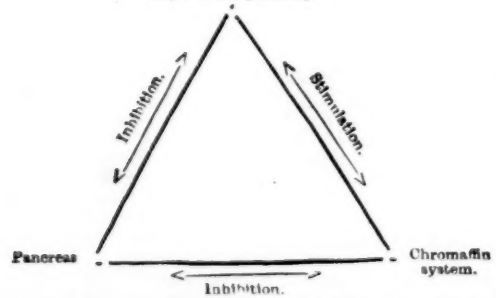
It seems probable that some of the cases of glycosuria in later life, accompanied by raised blood pressure, are of this nature, for we have seen that strain increases the secretion of the adrenals into the blood stream, and the two most obvious results of that excess would be raised blood pressure and hyperglycæmia. But at the present we have not conclusive evidence that such cases are due to overaction of the adrenals.

As I have already pointed out, the main effect of the diabetic puncture is produced through the adrenals (McLeod), and both the effect of puncture and of adrenal glycosuria appear to be limited by the amount of glycogen present in the liver. When this has been mobilised glycosuria ceases.

THE POLYGLANDULAR HYPOTHESIS.

Previous to Allen's work no proof had been attempted that pancreatic and spontaneous diabetes resembled one another and differed radically from all other forms of glycosuria. The inconstancy of pancreatic lesions and the knowledge that other glands could influence carbohydrate tolerance made the hypothesis of a functional loss of balance between these glands attractive to many.

This polyglandular hypothesis of diabetes put forward by Eppinger, Falta, and Rudinger can be summarised in the accompanying diagram :—



A difficulty in this hypothesis that diabetes depends on a loss of balance between the ductless glands is that, despite all the advances in our methods of investigating diseases of the ductless glands, we have not been able to detect such diseases in the majority of our diabetic patients.

If one endocrine gland were diseased we could understand how a loss of balance may be brought about comparable to the loss of the balance between muscles. When one group is paralysed the opponents show a contracture due to unopposed contraction. But such signs of endocrine gland disease are lacking in ordinary diabetes, even if carefully looked for. Again, when glycosuria occurs as a complication of a ductless gland disease it seldom attains the serious proportions seen in diabetes.

An Answer to Allen's Adverse Criticism of Polyglandular Theory.

For Allen, however, the pituitary, thyroid, and adrenal merely produce a toxic glycosuria which is quite distinct from diabetes. He criticises the polyglandular doctrine so severely that the experiments on which these criticisms are based call for consideration in some detail. I cannot help feeling that his criticisms and the deductions he makes from his experiments are not marked by the same unbiased judgment that characterises most of his other work.

To investigate the influence of the thyroid on carbohydrate tolerance he injected animals with a solution of dextrose, observed the glycosuria produced, and then removed seven-eighths of the thyroid, repeated the injection of dextrose, and compared the glycosuria that followed. In the case of the dog, whereas 2 g. of sugar appeared before, only 0·12 g. appeared after—i.e., the glycosuria was only 6 per cent. of its former amount; yet he considers this experiment tells against the influence of the thyroid on carbohydrate metabolism. In the case of the cat, he states that dextrose tolerance after removal of seven-eighths of the thyroid gland, "though high, was not beyond the limit of variation which may be shown by a normal cat." Unfortunately, he gives no protocols for this experiment.

He concludes that "the assimilative power for dextrose is not perceptibly altered by the removal of such fractions of thyroid tissue as were found in the case of the pancreas to alter the assimilation in an extreme degree." Still, I should have thought that a reduction of a glycosuria to 6 per cent. of its former figure might fairly rank as a "perceptible alteration."

Next, he removed seven-eighths of the thyroid and eleven-twelfths of the adrenals of a cat and gave a subcutaneous injection of dextrose, which, though raising the blood sugar to 0·452 per cent., caused only slight glycosuria. Yet he thinks that an increased ability to utilise dextrose was not demonstrable. Here, again, I should have thought his own experiment told against his conclusion.

In the next experiment he gave a cat thyroid extract, while adrenalin and sugar were injected. There was a much more marked glycosuria than when thyroid and sugar were given without adrenalin. Moreover, while he injected 6·6 g. of sugar the animal excreted 7·97 g. He admits that the amount excreted was in excess of that injected, as would happen in true diabetes, but he lays stress on the fact that the sugar still showed antidiuretic action, and was, therefore, behaving as a colloid. He did not attempt to demonstrate his dextrose paradox, but he contents himself with the remark that "it could undoubtedly have been demonstrated."

He then tried the effect of thyroid feeding on the carbohydrate tolerance of a cat. Before the tolerance for *injected* sugar was 4 g. per kg., afterwards it was only 1·25 g. per kg., for sugar given *by the mouth;* and there was then moderate glycosuria. The antidiuretic effect was still present, but it seems to me that he conclusively demonstrated a marked reduction of sugar tolerance as the result of thyroid feeding. Subsequent experiments on the same animal confirmed the lowered sugar tolerance.

Next, to a dog with four-fifths to five-sixths of its pancreas removed, in which the sugar tolerance was low, thyroid was given, and glycosuria with polyuria resulted. He explains away this result by saying that owing to greatly increased drinking diminution of urine was absent. But surely a more reasonable view would be that here, as in ordinary diabetes, the drinking was due to thirst excited by hyperglycæmia. It is a gratuitous assumption to regard the animal's thirst as the exciting cause of the glycosuria.

Then he removed the adrenals from a diabetic dog and found an immediate reduction of glycosuria. On one day no sugar was excreted. He urges that the animal was just as diabetic, but that it had merely suffered an addi-

tional fatal injury, and was worse off than before. But no one claims that regulation of carbohydrate metabolism is the sole function of these glands. And, of course, the animals suffer as to these other functions when the glands are ablated. But it does appear to me that Allen's own experiments may be quoted as supporting the polyglandular theory in so far as the adrenal and thyroid act in a contrary sense to the pancreas on carbohydrate metabolism, and that it is rather special pleading to explain away his own results in the way he does.

As against Allen's observations we may quote the experiment of Cushing, Weed, and Jacobson, who found in animals that had acquired a high sugar tolerance after extirpation of the posterior lobe of the pituitary subsequent extirpation of the pancreas did not cause glycosuria.

The Part Played by the Sympathetic.

We may conclude that underaction of the pancreas or overaction of the adrenal, thyroid, or pituitary can all lead to glycosuria. How is such a loss of balance supposed to be brought about if, as I have shown, there is no evidence of disease in any one gland? I should like to call attention to the way in which this loss of balance could be brought about through the sympathetic. The following general statements may be said to have gone beyond the stage of hypothesis to that of established fact:—

1. Sympathetic stimulation increases blood sugar as a defensive measure.

2. Sympathetic stimulation causes increased secretion of adrenals, thyroid, and pituitary.

3. Vagus stimulation excites secretion of the pancreas, and on the generalisation of the opposing actions of the parasympathetic and sympathetic it would appear probable that sympathetic stimulation inhibits the secretion of the pancreas. The antagonism between its internal and external secretions does not mean an antagonistic nervous supply; it means a diversion of nervous energy from one channel to another.

4. The general effect of sympathetic stimulation is katabolic, and mobilisation of blood sugar is a preparation for katabolic action.

5. Therefore the sympathetic, both by increasing the secretion of glands which diminish carbohydrate tolerance and by inhibiting the gland which increases carbohydrate tolerance, would raise blood sugar above the leak-point, and glycosuria would result.

I suggest that the failure of the carbohydrate of the food to be assimilated owing to defective action of the internal pancreatic secretion would produce far more profound disturbance of metabolism than the increased action of glands which simply increase the sugar mobilisation, because the action of the latter would be limited to that on the stored carbohydrate in the body, which does not reach a large amount. This accords with the fact that pituitary and thyroid glycosuria are more amenable than the glycosuria dependent on frank pancreatic disease. It would also explain why spontaneous diabetes resembles pancreatic diabetes so much more closely than the glycosuria originating from any other endocrine gland, and yet why, as Allen says, the diabetic may have as good a pancreas as anyone else, and although, as I have said, all other signs of pancreatic inadequacy are lacking.

Classification.

I suggest as the most reasonable classification of persistent glycosuria:—

1. *Organic origin*, with structural changes in the endocrine glands leading to (*a*) overaction of adrenal, thyroid, pituitary, or (*b*) underaction of pancreas.

2. *Sympathetic origin*, with no evidence of structural changes in any endocrine gland, but producing a functional (*a*) overaction of adrenal, thyroid, pituitary; and (*b*) underaction of pancreas.

This really makes spontaneous diabetes a disease of the sympathetic nervous system. It is not a new idea, though I hope I have given some additional reasons for believing it. Futcher, in his account of diabetes in Osler and Macrae's "System of Medicine," gives it as his opinion that functional disturbance of the autonomic system is responsible for some cases. Its association with neuropathic family history, with Graves's disease, with excitement, shock, and bereavement, has been recognised for many years. The influence of heredity and race is equally explicable on such a view. The special liability of the Jewish race, one of the most emotional of all, is a point in the same direction. If Graves's disease is "a state of continuous fear," diabetes is a state of continuous mobilisation of the blood sugar, and both of these may be due to dissociated action of the sympathetic nervous system.

My final conclusion, then, is that diabetes is due to deficiency of the pancreatic amboceptor, which deficiency may be due to structural changes in the pancreas, or to inhibitory action of the sympathetic on its internal secretion; this effect may be aggravated by sympathetic stimulation of other endocrine glands, thus further diminishing the power of carbohydrate assimilation.

Lettsomian Lectures

[IN ABRIDGED FORM]

ON

JAUNDICE,

WITH SPECIAL REFERENCE TO TYPES OCCURRING DURING THE WAR.

Delivered before the Medical Society of London

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LECTURE II.

(*Continued from p. 872.*)

JAUNDICE DUE TO SPECIFIC FEVERS AND INFECTIONS.

Relapsing fever is due to the blood infection by the spirochæte of Obermeier, the mode of transmission being through the louse, as shown by Mackie. The onset of the disease is sudden and acute. Jaundice occurs quite early, often on the first or second day, and it is usually quite marked and in some cases deep. Enlargement of the liver was observed in 41 per cent. of the cases. It is due, no doubt, to a catarrh of the fine bile-ducts. In the series of 241 cases observed by Captain M. A. Nicholson, I.M.S., at Bagdad anæmia was not usual, and symptoms pointing to severe degeneration of the hepatic cells (icterus gravis) were generally absent. In fatal cases the symptoms are those of a bacterial toxæmia, and not like those of auto-intoxication from defective liver function.

In treatment very great success was obtained from the intravenous injection of 0·3 g. of kharsivan, and no toxic effects were observed from the use of this drug. Usually the temperature fell to normal within from 10 to 24 hours, and after its administration relapses were rare, occurring in only 5 per cent. of the cases. The dose of kharsivan was purposely by my advice kept as low as possible consistent with effective action of the drug, for it was fully realised that the toxins of relapsing fever were liver poisons, and that the greatest care was necessary in the use of an arsenobenzol compound which, as already pointed out, has also a powerful toxic action on the liver.

Malaria.—Jaundice would be expected to occur in malaria in consequence of the action of the malaria parasite on the red blood corpuscles, and in severe cases it is commonly present. The malaria poison does not have a specially marked degenerative action on the hepatic cells, so that the complex group of symptoms of "icterus gravis" do not result. The symptoms in severe cases are due to the direct action on the body of the malaria toxins. The poison undoubtedly causes in severe cases a catarrh of the finer bile-ducts, and this, together with the increased amount of bile-pigments, results in jaundice. The colour in these is yellowish but not usually of the deep yellow which one associates with a complete obstruction of the bile-ducts; the stools are not pale in colour, and bile-pigments are generally absent from the urine or only present in traces. In the mild type with a deep jaundice and pale stools some other factor is probably also operating, such as an epidemic catarrhal infection.

Treatment of cases of malarial jaundice with quinine bihydrochloride gr. x. in 5 c.cm. of water for intramuscular, or in 10 c.cm. of normal saline for intravenous, injection gave

excellent results. The doses were given once or twice daily, the intravenous injections being given in the more severe cases. After four or five days the injections were discontinued and quinine gr. xxx. by the mouth was continued daily for three weeks. In the acute stage of the illness quinine by the mouth alone had little or no effect.

In October, 1918, under special orders I visited Northern Persia in consequence of the severity of the influenza epidemic amongst our troops. The hospitals were filled with patients, and one was struck by the marked character of the symptoms displayed. In addition to the usual symptoms of influenza a large proportion (about 90 per cent. of the patients) showed anæmia, slight but definite jaundice, and marked enlargement of the spleen and liver. Blood examinations were made, and in all these cases malaria parasites, frequently of the malignant tertian type, were found. It was the malarial complication which was accounting for the high mortality of the influenza epidemic in our troops in this region. Injections of quinine hydrochloride as above described gave excellent results.

Blackwater fever is a very pernicious type of malarial hæmoglobinuria which is common in the Gold Coast region of West Africa. The earlier development of jaundice is a characteristic feature. The prime factor in its causation is the enormously rapid destruction of red blood cells which occurs.

Enteric Group Disease.

There appears to be no reason to doubt that jaundice due to an obstructive catarrh of the small intra-hepatic bile-ducts occurs in the three forms of enteric group disease, and I am of opinion that this obstructive catarrh is usually in such cases directly due to the particular enteric group organism present and not due to a secondary infection.

Dysentery.—Jaundice is not a symptom *per se* of either form of dysentery, but may occur in severe cases with extensive ulceration, and is probably due to a secondary infection, facilitated by the damaged bowel.

Typhus fever.—The occurrence of jaundice in typhus fever is very uncommon, and is generally an indication of an additional infection, such as malaria or relapsing fever, which blood examination will elucidate.

Pneumonia.—Jaundice not infrequently occurs in pneumonia, and is probably due to an intra-hepatic catarrh of the fine bile-ducts; its presence does not necessarily increase the gravity of the prognosis.

Influenza.—Jaundice has been recognised for some time as an occasional symptom of influenza, especially in cases of gastro-intestinal type. In the cases seen in Mesopotamia uncomplicated by malaria jaundice was extremely rare.

Syphilis.—The occurrence of jaundice in this disease is well known. In the acute secondary stage jaundice is not uncommon, and is probably due to intra-hepatic catarrh of the finer bile-ducts and increased destruction of red blood cells. In congenital and tertiary syphilis the fibrosis occurring, whether unilobular, multilobular, or in gross patches forming gummata or scars, is commonly associated with jaundice.

Yellow fever.—In this disease the most profound degenerative changes with fatty deposition are produced with great rapidity in the liver cells, and in addition there is a marked increase in the destruction of red blood cells. Definite jaundice commences as early as the second day. In severe cases the quiescent stage is followed by increased depth of jaundice and the gravest symptoms—viz., black vomit, hæmorrhages from the gums or other mucous membranes, petechiæ of the skin, albuminuria, delirium, subsultus tendinum, possibly convulsions, Cheyne-Stokes breathing, coma, and death.

Pyæmia and septicæmia.—In conditions of septico-pyæmia jaundice not infrequently occurs, an important causal factor being the great hæmolysis caused by the circulating toxins. When the portal distribution is affected suppurative pylephlebitis and multiple liver abscesses are likely to occur, and will be associated with definite jaundice, rigors, intermittent high pyrexia, enlarged very tender liver, and other signs of septic poisoning.

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(*Continued at foot of next column.*)

LECTURE III.

Delivered on May 2nd, 1919.

EPIDEMIC CATARRHAL JAUNDICE.

THE symptoms and course of the disease form a characteristic clinical picture, and they undoubtedly constitute a special type of jaundice, of which the exact pathological cause has not been conclusively demonstrated. From my own clinical observations and from the results of the very careful bacteriological examinations that have been carried out on a large number of cases in the Dardanelles and Mesopotamia, I have not the slightest doubt that the epidemic catarrhal jaundice was a special entity entirely distinct from spirochætosis ictero-hæmorrhagica.

Symptoms.

The symptoms were as follows: The patient had usually some abdominal discomfort for a few days, associated with anorexia, nausea, with perhaps occasional vomiting, and either diarrhœa or constipation. Sometimes there was a history of diarrhœa or dysentery during the previous few weeks. Pyrexia of a mild type generally followed, and was associated with some chilliness and occasionally some shivering. The tongue was moist and often furred, but might be quite clean. Vomiting often occurred at this stage and slight headache was common. "Pains all over" were sometimes complained of in the early stage of pyrexia. Abdominal discomfort in the hepatic and epigastric regions was usually present. The pyrexial period in some cases lasted only for one or two days, generally from two to four days, but rarely for longer.

About the third or fourth day from the onset of pyrexia jaundice occurred, at first slight, but gradually deepening in intensity until it became of the ordinary obstructive type, with pale stools and bile-stained urine. It usually attained a maximum in about ten days and then gradually subsided, but the duration and intensity of this symptom varied.

Definite uniform enlargement of the liver could be made out by palpation as the jaundice developed, owing to slight tenderness being present. Some cases showed definite swelling in the gall-bladder region, and on palpation there were indications of enlargement of this organ in about 10 per cent. of cases. An enlarged spleen could usually be felt, extending for half an inch or more below the left subcostal border on inspiration. The enlargement of the liver and spleen gradually diminished with the subsidence of the jaundice.

During the pyrexial period the pulse was quickened to 80 or 90 per minute, but with the onset of jaundice it became slowed to about 50 in some cases. In cases with

(*Continued from previous column.*)

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pyrexia lasting three or four days or more, on about the third or fourth day a definite increase in the deep cardiac dullness could be made out, manifest mainly on the right side, extending one or two inches to the right of the sternal border. With rest in bed no symptoms of cardiac embarrassment occurred. The cardiac dilatation usually lasted for only four or five days and then subsided.

The urine in the jaundice stage showed the usual presence of bile as in obstructive jaundice. Albumin and casts were absent, save in those exceptional cases in which icterus gravis developed. The duration of the obstructive jaundice stage was not sufficiently long for such skin complications as pruritus, boils, &c., to develop. Anæmia, herpes, congestion of the conjunctivæ, and hæmorrhagic symptoms were not observed, and special nervous symptoms other than asthenia and depression did not occur in the ordinary type of case. It was very uncommon for a secondary rise of temperature to occur.

The treatment of the ordinary type of case consists of rest in bed and light diet, with saline aperients and an alkaline mixture of citrate of potash and bicarbonate of soda. Oranges and lemon drink made from fresh lemon-juice are advisable as antiscorbutics. Calomel in small repeated doses should never be given in cases of epidemic jaundice owing to the risk of mercurial stomatitis; a single dose of calomel may be given without danger, but it and other powerful purgatives are best avoided.

Development of "Icterus Gravis" Symptoms in Cases of Epidemic Catarrhal Jaundice.

Although cases of epidemic catarrhal jaundice usually run a mild course without any serious symptoms one can never be quite free from anxiety as regards a patient. In rare cases at some period of the jaundice stage acute toxic symptoms may develop exactly as in "icterus gravis," and almost invariably these cases end fatally within about two or three days of the onset of the grave symptoms. I have seen several of these, and have notes of 15, on most of which careful post-mortem examinations were made.

The grave symptoms usually occurred a few days (about 10) after the appearance of the jaundice, in one case 2 days, in another 4, whilst in one case the interval was as long as 29 days. There appeared to be no relation between the depth of the jaundice and the development of the grave toxæmia. Some patients were not deeply icteric at the onset of the toxæmic symptoms, but the jaundice increased as these developed. Also the preliminary symptoms of the illness were exactly like those of the ordinary type of the disease and gave no warning of the future grave development.

The terminal fatal symptoms in epidemic catarrhal jaundice are closely identical with those of delayed chloroform poisoning and of the other toxic liver poisons. The post-mortem signs also are exactly identical. Atrophy of the liver or extensive degeneration is the pathological result of either condition.

Ætiology.

In both Mesopotamia and in the Dardanelles there was a close association with the "dysentery" (i.e., entero-colitis affections) incidence. Thus, the charts for the two diseases in both the Dardanelles and Mesopotamia indicate that the jaundice curve attained its maximum about three weeks after that of dysentery.

There must be an ætiological association between the two diseases—e.g., food or water infection—and it is likely that the entero-colitis resulting from a "dysenteric" affection in some cases prepared the way for the infection, causing epidemic catarrhal jaundice. This view is borne out by the symptomatology of the disease, for, as we have seen, there was commonly a previous history of diarrhœa or dysentery in the jaundice cases, and also it was not uncommon for jaundice to develop in patients actually suffering from dysentery in hospital.

The epidemic character of the disease is beyond doubt, and in the Dardanelles and in Mesopotamia there were numerous instances of a large percentage of cases occurring in one unit. The danger of infection from person to person does not seem to be greater than in enteric, for instances of infection from patient to patient in hospital were not common.

The epidemic character appeared due to a common cause rather than a spread from person to person. No evidence of air-borne infection was obtained from the study of the disease in the Dardanelles and in Mesopotamia. The association of the curves for epidemic catarrhal jaundice with those of dysentery diarrhœa diseases and enteric group infections indicate an intestinal origin for the infection.

Bacteriology.

In no case of clinically "epidemic catarrhal jaundice" was any specific organism found as the result of blood cultures, though an organism has been found by Sarrhailhé and Clunet which did not give the agglutination reactions for paratyphoid A or B and which they named paratyphoid D. These observations have not been confirmed by our bacteriologists.

Numerous examinations for spirochætes have been made with negative result. The blood was examined in the early stages, also the urine in the later stages. Liver punctures were made during life and in post-mortem cases the organs were examined. In no case was the *Spirochæta ictero-hæmorrhagiæ* found in the blood, urine or liver, or in the organs after death, though guinea-pig experiments were freely made in addition to the ordinary methods of investigation.

It has been conclusively proved that in the epidemic catarrhal jaundice of Mesopotamia the disease was not caused by a spirochætal infection, and the exact similarity of the Dardanelles cases to those in Mesopotamia justifies the same conclusion for them. Neither in the Dardanelles nor in Mesopotamia was there any association whatever between occurrence of the disease and the presence of rats. Indeed, in Mesopotamia numerous cases of jaundice occurred in camps in the desert where no rats existed for miles around, and in no case has any evidence been found of a spirochætal infection in rats.

I believe that epidemic catarrhal jaundice is probably due to an intestinal infection causing duodenitis and a catarrh of the bile-ducts. The area around the ampulla may be mainly affected, and in some cases there may be produced an ascending catarrh, causing a cholangitis. In either case an obstructive jaundice may result. The above train of events is, no doubt, associated with a transient general blood infection, of which the causal organism has yet to be proved.

It is possible that, in some cases at any rate, the catarrhal condition of the duodenum and bile-ducts may be caused by organisms which are found in health in the intestinal tract—e.g., *Bacillus coli communis* or *Bacillus alkaligenes fæcalis* type. It is well known that a common "cold in the head" or "nasal catarrh" may be caused in an individual by organisms which are found in his nasal passages in conditions of health. It is quite possible that a similar condition of things may occur in epidemic catarrhal jaundice.

INFECTIVE JAUNDICE DUE TO SPIROCHÆTOSIS ICTERO-HÆMORRHAGICA.

This form of jaundice was first differentiated by two Japanese workers, Inada and Ido,[10] in November, 1914, who have made a brilliant investigation into the ætiology, symptomatology, and pathology of the disease, and it has since been described by various observers.

An excellent account of the clinical manifestations was given by Sir Bertrand Dawson,[14] which was published in THE LANCET of Nov. 2nd, 1918. It is interesting to note that spirochætosis ictero-hæmorrhagica may occur without jaundice.

Morbid anatomy.—Sir Bertrand Dawson found marked evidence of duodenitis and intense inflammation in the area round the ampulla of Vater, the bile-ducts being free from inflammatory changes to the naked eye. The liver on microscopical examination showed in some cases evidence of cellular degenerative changes. In one case described by Dawson a condition of acute yellow atrophy was found. The condition of acute yellow atrophy in fatal cases of spirochætosis ictero-hæmorrhagica is apparently uncommon, death usually resulting from the toxæmia of the disease rather than from auto-intoxication consequent on acute yellow atrophy.

Kidneys.—These showed in all cases some degenerative changes of the epithelial cells. In some there was evidence of a nephritis which in a certain number was hæmorrhagic in character.

Spleen.—In none of Dawson's or Stokes's cases was any enlargement found.

Clinical pathology.—The scarcity in number of organisms present in infected patients makes it necessary frequently to resort to guinea-pig experiments in order to discover the spirochæte. The guinea-pig is extremely susceptible to the disease and the introduction of infected material into the intraperitoneal cavity is followed, after an incubation period, by a rapid development of typical symptoms associated with a heavy infection, so that it is easy to demonstrate the spirochæte. Introduction of some of the blood (3 c.cm.) into a guinea-pig intraperitoneally is likely to give a positive result up to the seventh day of the illness. The urine from the tenth day to the fifth week usually contains spirochætes and the centrifugalised deposit may yield a positive result on microscopical examination, or a portion injected into a guinea-pig may reproduce the disease in it. The spirochæte obtained from the urine is agglutinated by the blood of the patient after the fourteenth day of the disease, at which time protective substances conferring immunity are found in the blood.

Mortality.—The mortality varies from about 30 per cent. (Inada and Ido) to 4 to 5 per cent. (Dawson).

A comparison of the symptoms of spirochætosis icterohæmorrhagica with those of epidemic catarrhal jaundice renders it perfectly clear that the two diseases are quite distinct. In catarrhal epidemic jaundice the low mortality, the premonitory period of several days before the onset of pyrexia, the absence of herpes and of hæmorrhagic symptoms, the absence of symptoms of severe toxæmia, the common occurrence of splenic enlargement are prominent distinguishing features.

Weil's disease.—This type of jaundice was described by Weil in 1886. The symptoms resembled in many respects those of spirochætosis ictero-hæmorrhagica, but important points of difference are the high mortality (30 per cent.) and the marked splenic enlargement described.

It would, in my opinion, be most desirable if the term "Weil's disease" were entirely abolished from our nomenclature. For cases of that type, in which no specific spirochæte or other infection are found, it would be far better to use the general term "hæmorrhagic infective jaundice."

OTHER FORMS OF JAUNDICE.

Jaundice in Anæmia.

In chlorosis jaundice is almost invariably absent.

In pernicious anæmia a waxy lemon-yellow tint of the skin is common, but definite yellow tint affecting both skin and conjunctivæ is rare. Marked jaundice scarcely ever occurs in this disease.

Banti's disease or splenic anæmia.—Jaundice is a rare symptom in this disease. In cases where the splenomegaly is accompanied by a progressive cirrhosis of the liver jaundice of a slight type will usually be present.

Acholuric jaundice.—The congenital type of this disease was first described by Minkowski in 1900, and since then numerous cases have been recorded. Its characteristic features are: (1) a family history of the disease; (2) chronic splenomegaly; (3) maintenance of fair health for a long period; (4) chronic slight jaundice; (5) presence of urobilin in the urine but absence of bile pigment; (6) increased tendency to hæmolysis of the red blood corpuscles. The blood serum in these cases contains bile pigment. The icterus is not always present at birth, but may develop in childhood.

Acquired acholuric jaundice.—Cases with no family history have been described by many observers. The jaundice and other symptoms have the same characters as the congenital form.

Hereditary icterus.—Dr. John Thomson attributes this disease to a congenital narrowing of the bile-duct coupled with an inflammatory condition set up by the altered bile. The congenital acholuric jaundice already described comes under this head.

Icterus neonatorum may be (1) physiological, which is fairly common, and is a mild form which soon passes off; (2) severe, and due to (*a*) congenital absence of the common bile-duct; (*b*) congenital syphilitic hepatitis; (*c*) an infective form set up by a septic infection from the umbilicus, or more commonly by an infection of intestinal origin. In icterus neonatorum, unlike other forms of jaundice, the central nervous system often shows bile staining.

Acute Yellow Atrophy of the Liver.

This is a common condition after many chemical poisons and many infective processes. Its not infrequent occurrence in pregnancy, due no doubt to the production of autogenous poisons, is of special interest. "Acute yellow atrophy" is a morbid anatomical condition of the liver due to some toxic cause and with increased knowledge this disease will cease to be regarded as a separate entity. The morbid anatomical condition of the liver known as "acute yellow atrophy" gives rise to loss of hepatic function and this symptomatically gives rise to the "symptom-complex" known as "icterus gravis." The loss of function may result not only from a condition associated with shrinkage—i.e., "acute yellow atrophy"—but also, as in delayed chloroform poisoning, from an extensive and rapid degenerative change of the liver cells followed by loss of function, no diminution in size or "atrophy" of the organ occurring.

CONCLUSION.

The above review of the study of jaundice emphasises the paramount essential of observation and experiment in determining the cause and exact knowledge of disease. Up to 1881 our knowledge had only enlarged upon that of Hippocrates as the result of the observation obtained from post-mortem examination in fatal cases; this could go so far but no farther.

In 1881 came the great advance due to "animal experiments" of which those on dogs were of very great importance. Stadelmann, and in this country Hunter, by these experiments advanced our knowledge enormously. Since then progress has been steadily made and very greatly during the period of the war, but every step has been the result of observation, and without the bacteriological, chemical, and physiological experiments carried out in the laboratory we should have made little, if any, advance.

The history of jaundice up to date is an object-lesson upon the lines on which scientific medicine should be based in the future. In the study of disease clinical observation is all-important, but it can only carry us a certain distance towards the goal of full knowledge. Clinical observation by the physician must go hand in hand with scientific experiment by the experimental worker if progress is to be sure and rapid. Neither alone can achieve this result, for a distorted knowledge lacking in perspective is bound to result from independent working.

The physician and the scientific worker in the laboratory should be familiar each with the other's work and aspirations, and should ever lend a guiding hand to one another in order that the medicine of the future may attain that perfect advancement and full knowledge which all desire.

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CERTAIN CHRONIC COLOPATHIES:

ORIGIN AND CLINICAL EVOLUTION.

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CHRONIC colopathies constitute the majority of the chronic intestinal affections observed during the war among soldiers hospitalised in gastro-enterological wards. In a series of 102 consecutive cases of chronic colitis we have been able to collect 73 cases in which the existence of an initial acute stage appears evident.

Chronic Colitis following—

Amœbic dysentery ...	38 cases.	Gastro-intestinal influenza	4 cases.
Bacillary dysentery (type Shiga)	3 ,,	Intoxication by gas	4 ,,
Acute dysentery (nature unknown) ...	24 ,,		

I. *Chronic Colopathies of Amœbic Origin.*

The chronic colopathies of amœbic origin are the most frequent. Among the amœbic cases three were autochthonous; the rest were contracted during service in the East. In 19 malaria coexisted with the dysentery. Of the 38 patients three had an unrecognised dysentery; one was sent to hospital for anæmia and diarrhœa, another for intestinal hæmorrhages, and a third for enterocolitis with hæmorrhages. It would appear that the chronicity of the colitis had no definite relation to the gravity of the début. The percentage of cases is practically the same for patients between the ages of 20 and 30 as for those between 30 and 40. The majority of these cases have no history of previous intestinal troubles.

On the other hand, *hygienic conditions* have marked influence. Cold weather, trench life, and defective alimentary hygiene all appear to favour relapses. The least error in the food regime can markedly modify the patient's stools and general condition.

Two things dominate the clinical picture of these colopathies—the pain and the modification of the stools.

Pain.—In nearly all cases colics are noted. Rarely continuous, they often occur an hour or two after food, and are followed by pasty or liquid stools. Often they are extremely violent, until the patient defæcates, but cease immediately afterwards. In two cases the colics were so violent that the patients were sent into hospital with the diagnosis of appendicitis. Frequently they are associated with tenesmus. Nothing is more difficult than the complete banishment of these pains; although under the influence of treatment they can be diminished, leaving behind irregular, slight abdominal pains, associated with a diarrhœa of three or four stools a day.

Stools.—The aspect of the stools varies under the influence of several factors, the most important being the condition of the large intestine. One must not, however, fail to recognise here the rôle of the secondary functional troubles of the stomach and small intestine, the influence of the regime, of the treatment, not forgetting those puzzling spontaneous ameliorations for which it is difficult to see any cause. However, several types of stools can be distinguished.

1. Frequent small stools, constituted by a small amount of bloody or purulent mucus, recalling the syndrome of the acute phase.
2. Large infrequent stools, covered with muco-pus or bloody mucus, which is laid down on the surface, the form and consistence of the stool not being markedly modified.
3. Stools "en tas," infrequent (one or two a day), often large in quantity, containing non-concreted mucus intimately mixed with the fæces; this is the type most frequently met with.
4. Stools of "false diarrhœa"—scybala swimming in liquid diarrhœic matter.
5. Stools rich in food residues (potato, muscular fibres, exceptionally fat globules), indicating an added intestinal dyspepsia.

The abdomen is usually supple, often distended after food (12 cases out of 27), more rarely retracted. One frequently notes gurglings (12 cases), especially in the right iliac fossa. Pressure frequently evokes abdominal pain, again particularly in the right iliac fossa (12 cases, of which 2 were admitted into hospital for "appendicular attacks"). In others, the pain on pressure is more marked over the liver and gall bladder (5 cases), in the epigastrium (9 cases), at the splenic angle (2 cases), over the course of the descending colon (4 cases).

The liver dullness was increased in 8 cases (2 of which were determined by a malarial hepatitis).

The *general condition* is nearly always affected. The patient has lost weight, is anæmic, facies pale and sometimes subicteric (9 cases, of which 6 may have been related to an associated malaria) These remarks only apply to the stage of chronic colopathy, and do not envisage the marked wasting which corresponds to the acute or subacute stages of the amœbiasis.

One notes frequently irregular, moderate variations of the bodily weight, which appear to have no relation to the treatment. The temperature in most cases remains normal. Frequently the patient complains of general weakness and vague headaches. Very often his mental state is one of depression and thorough pessimism, especially after numerous or prolonged hospitalisations.

So far, the clinical characteristics of these chronic colites following an amœbic dysentery correspond broadly to the picture described by Mouriquand and Deglos.[1] We would, however, draw attention to two points on which these two authors do not lay stress.

1. In a large proportion of these patients, whatever the stage of the colopathy, the gastric integrity is not perfect. The whole digestive tube reacts under the form of functional troubles of variable intensity. The appetite is irregular or absent, tongue furred; feeling of gastric heaviness after food, eructations, pains or heartburn, sometimes a painful "barre transversale" difficult to distinguish from the colic pains; abdominal distension, flatulence, all of these troubles occurring three or four hours after food. Vomiting is rare (2 cases). In one patient the hypothesis of an ulcer of the small curvature appeared probable. These symptoms do not seem to have any relation to the severity of affection of the colon. Nor do they appear to depend upon an associated malaria.

2. Another sign which we have frequently noted on palpation is the spasmodic state of the large intestine, more particularly of the descending colon. Of 13 radioscopic examinations (see below) we have in 5 cases observed a spasmodic state of the large intestine, of the transverse colon (3 cases), or of the descending colon (2 cases).

The presence of amœbæ or amœbic cysts.—In 38 patients suffering from chronic amœbic dysentery, amœbæ were found by us in the stools of 7 cases, cysts in 7; in all, 14 cases where the diagnosis of amœbic dysentery was confirmed by us by the examination of the stools.[2] The finding of amœbæ coincided with bloody liquid stools containing masses of mucus. The presence of cysts has been noted to coincide with stools containing mucus in quantity (5 cases out of 7), or blood (4 cases out of 7). On the other hand, in patients who had very frequent bloody stools with mucus (14 to 20 per day) the search for amœbæ or cysts was negative though practised on several occasions.

Radiological examination.—Thirteen of our patients underwent an X ray examination (observation of the passage of a bismuth meal through the whole length of the alimentary canal). In 7 cases nothing abnormal was found in the large intestine; of the rest, the results of the examination can be classified thus: (1) colic pneumatosis (marked distension of the splenic angle by gas, 2 cases; distension of ascending colon, 1 case); (2) spasmodic condition of the large intestine (5 cases); (3) hindrance to evacuation by probable peritoneal adhesions about the cæcum (2 cases).

Rectoscopy.—We have only done a rectoscopic examination in two cases. In one patient we found small ulcerations at a distance of 15 cm. from the anus, accompanied by tumefaction of the submucosa; in the other, ulcerations with the same characteristics, but less numerous, 14 cm. from the anus.

The evolution of these colopathies is very slow, with tendency to relapses. Of patients whom we have been able

[1] Soc. Méd. des Hôp., Jan. 18th, 1917; Paris Médical, Dec. 1st, 1917.

[2] In all the cases the diagnosis was confirmed at some period of the disease, by the finding of amœbæ or cysts, either by ourselves or by previous observers.

to follow over a considerable period we mention the following results:—

6 have been notably ameliorated.
12 have apparently had a local amelioration, but have retained a poor general condition.
13 have retained persistently certain abnormal modifications of the stools (e.g., two or three diarrhœic stools a day) in spite of prolonged treatment.

II. *Chronic Colopathies Consecutive to a Bacillary Dysentery.*

Our experience of these cases is more limited. We have seen no case of a chronic colopathy definitely due to an acute dysentery by the bacilli of Flexner or Hiss. It appears that these two types are completely cured without leaving behind chronic troubles. As regards dysentery by bacillus Shiga, we have only had 7 patients where the bacteriological examination showed the dysentery to be definitely of this nature; of these, three patients after a convalescence of several weeks were readmitted for "chronic intestinal troubles." All three were young, 19, 20, and 23 years respectively, and in each case the initial attack had been severe. Treated with antidysenteric serum they made rapid progress, and on discharge appeared to have recovered completely from their attack of dysentery. During convalescence, however, they complained of digestive troubles, unimportant at first, but progressive (vague pains after food, slight colics; or frequent irregular colics associated with a varying degree of diarrhœa). Two cases are still under treatment.

Case 1.—Patient, aged 19, discharged from hospital in September, 1918, after an acute bacillary dysentery (type Shiga). During convalescence, one stool a day, non diarrhœic; pains in umbilical region; no vomiting, good appetite. Readmitted to hospital on Dec. 8th, 1918.

On admission no marked anæmia; tongue normal; abdomen a little distended; liver dullness slightly diminished (measures four finger-breadths along the mamillary line); abdominal wall somewhat resistant, difficult to palpate, though rigidity is not present. Ascending colon not perceptible. Descending colon perceptible and feels fairly flaccid. Nothing abnormal to be felt in the subumbilical region.

Stools.—One or rarely two per diem; very variable, usually "en tas" or "en bouse de vache," frequently containing mucus. No blood. No cellular elements in masses of mucus.

Lavage of the large intestine by normal saline.—The fluid contains neither blood nor dissolved albumin; no identifiable cellular elements. The systematic examination of the stools shows from time to time non-digested food débris, indicating a slight degree of fermentative dyspepsia.

Radiological examination.—(*a*) Bismuth enema. Marked dilatation of the ascending and descending colons under the influence of the fluid. Very small quantities of the bismuth are visible in the transverse colon which appears rather contracted.

(*b*) After bismuth meal. Six hours after meal, half of bismuth is in cæcum, the other half still in last loops of small intestine. No apparent dilatation of last portion of the small intestine. Twenty-four hours after meal the bismuth is in the cæcum and transverse colon; splenic angle shows a large gaseous pocket. The bismuth reappears in descending colon at level of iliac crests and descends as low as sigmoid loop. Thirty hours after meal, the bismuth is only found in a small portion of last third of descending colon.

Rectoscopy.—Penetration of the tube as far as 20 cm. does not show the presence of any lesions.

The patient is still in hospital. Amelioration of the general condition is very slow. Slow but regular gain in weight (Dec. 10th, weight 55·6 kg.; Jan. 27th, 60·5 kg.).

In both cases still under treatment the examination of the stools for *B. shiga* is negative. The striking point about these cases is the persistence of the intestinal troubles. The general condition hardly improves at all; the patients continue to suffer from abdominal pains under the form of slight colics. In spite of all treatment, the stools remain semi-solid, "en tas," or "en bouse de vache," with fine mucus, rarely with mucus in considerable mass, very exceptionally with blood.

III. *Colopathies Consecutive upon a Non-determined Acute Dysenteric Syndrome.*

Of 24 cases in which it was not possible to confirm amœbic or bacillary dysentery 19 had a history of a previous acute dysenteriform syndrome. Six of these, however, were probably bacillary dysenteries (cured by antidysenteric serum, although the cultures of the stools practised in but two of these six cases were negative). Another case appears a probable amœbic dysentery (an old malaria patient from the East, from whose stools, however, neither amœbæ nor cysts were isolated).

We have noted only 14 cases whose colopathy can be referred back to an acute dysenteriform enterocolitis, where the characters of an amœbic or bacillary dysentery were not presented.

In opposition to the previous types (amœbic or *Bacillus shiga* dysenteries), all these forms underwent rapid amelioration under the influence of régime and treatment; only one patient out of the 14 has failed to improve, in spite of persevering and prolonged treatment. In his case, however, he has suffered from intestinal troubles from infancy. The general picture of these colopathies of undetermined origin is that of a mucous colitis, accompanied or not, as the case may be, by colospasm, showing alternations of diarrhœa or of false diarrhœa, and constipation.

IV. *Colopathies Consecutive to an Influenzal Infection.*

We have noted in four cases the existence of a chronic colopathy consecutive to influenzal infection. These patients had an "acute enteritis" in the course of an influenza; after their convalescence they retained for several weeks a tendency to diarrhœa with mucus in the stools, colics of moderate intensity, and signs of intestinal irritability.

V. *Colopathies Consecutive to Intoxication by Gas.*

In a patient who (before the war) had had an amœbic dysentery which was apparently cured, intoxication by gas was followed by a subacute reawakening of the disease. We have also seen four cases which seem to show clearly that intoxication by gas can damage the whole alimentary canal, even the colon failing to escape.[3] We give a brief résumé of one or two illustrative cases.

CASE 1.—Patient, aged 26, on August 20th, 1917, gassed (mustard gas); following this, slight cough, vomiting (lasting six days), colics, anorexia. Violent abdominal pains after food. Admitted to hospital on Dec. 6th, 1917.

Present condition.—Notable wasting (from 75 to 64 kg.). Pains in epigastrium; feeling of heaviness after food, with acid eructations. After a certain period of time these symptoms disappear and are replaced by severe colics, whose seat is in the transverse colon. Abdomen supple; pain on palpation of epigastrium. Alternation of diarrhœa and constipation with mucus in the stools.

CASE 2.—Another patient, two months after he was gassed, retained a diarrhœa of four or five stools a day; violent colics, followed by imperious call to stool.

CASE 3.—Persistence of a moderate diarrhœa (three or four stools a day) some months after his intoxication, with an excessively irritable and spasmodic large intestine.

Conclusions.

Thus chronic colopathies appear in numerous cases to follow an acute dysentery or an acute dysenteriform colitis. It is classical that amœbic dysentery often brings with it as sequel a chronic colopathy. The same trouble can be seen after dysentery caused by *B. shiga*, a fact hardly noted up to the present. More rarely, chronic colopathies are consecutive to other infection or intoxication which has determined an acute inflammation of the large intestine. The systematic search for the probable origin of chronic colopathies is interesting for several reasons. From the point of view of nosology, it appears that a number of intestinal conditions whose ætiology, as well as their clinical study, are too often obscure, have as a definite point of departure an acute phase, toxic or infective in origin.

From the therapeutic point of view, unfortunately, the treatments applicable to the acute phase of amœbic or bacillary dysentery (emetine, antidysenteric serum) do not give very appreciable results in the chronic sequelæ. There-

Table of a Number of Consecutive Cases of Chronic Amœbic Dysentery (Arranged in Order of Age), Showing the Chronicity of these Colopathies.

(A) No. of hospitalisations before admission to this hospital.
(B) Duration since début of amœbic infections.
(C) Duration of hospitalisation in this hospital.

Name.	Age	(A)	(B)	(C)	Name.	Age	(A)	(B)	(C)
Gr.	20	?	?	2 mos.	Ju.	33	2	1 yr.	1½ mos.
Cal.	23	1	14 mos.	½ mo.	Vi.	34	2	11 yrs.	2 mos.
Le. Tr	26	?	12 mos.	2 mos.	Gr.	35	2	9 mos.	½ mo.
*Ro. (1)	26	N	4 yrs.	1 mo.	Sh.	35	2	2 mos.	1½ mos.
†Ro. (2)	26	N	4 yrs.	3 mos.	Lo.	36	3	15 mos.	1 mo.
Pa.	27	5	21 mos.	3 mos.	Bon.	36	3	20 mos.	1 mo.
*La. (1)	27	5	25 mos.	2 mos.	Du.	37	?	?	4 mos.
‡La. (2)	27	5	25 mos.	½ mo.	Be.	37	6	18 mos.	2½ mos.
Po.	27	6+	5 yrs.	2 mos.	Ga.	38	3	13 mos.	2½ mos.
Du.	27	5	12 mos.	1½ mos.	Thé.	38	3+	31 mos.	2 mos.
Ta.	28	3	10 mos.+	2 mos.	Br.	39	?	4 yrs.	4½ mos.
Re.	28	3	14 mos.	3 mos.	Pa.	43	2	5 yrs. +	½ mo.
Pl.	31	?	17 mos.	2½ mos.	Ri.	46	1	3 mos.	1½ mos.
Du.	32	?	18 mos.+	1 mon.	Gn.	?	4+	27 mos.	2½ mos.
Ma.	32	7	14 mos.	2½ mos.	Le.	?	5	12 mos.	?
Rod.	33	0	4 mo.	3 mos.	Al.	?	?	7 yrs.	?

* 1st time. † 2nd time, 5 mos. later. ‡ 2nd time.
N, numerous; mos., months; yrs., years.

[3] See Labbé, Les éclopés de la digestion, Presse Médicale, Nov. 11th, 1918. Achard: Séquelles de intoxications par les gaz de combat, Académie de Médecine, Feb. 4th, 1919.

fore, in point of practice it is important to defeat the tendency of these forms of acute colitis to pass into a chronic stage. Side by side with the specific treatment indicated in the acute period, it is necessary not to neglect, during convalescence, the disinfection of the intestine, not only by intestinal antiseptics, but more particularly by a severe food régime, so conceived as to avoid intestinal fermentations and putrefactions.

The facility with which certain forms of acute colitis pass into a chronic condition is to some extent the measure of the delicacy of the large intestine; whence the imperious indication of taking care of and protecting this segment of the alimentary canal, during the whole of its convalescence from infections which have damaged it.

THE CLINICAL PATHOLOGY OF THORACIC PUNCTURE FLUIDS.

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A GOOD deal of useful information as to diagnosis and treatment may be obtained from the laboratory investigations of thoracic puncture fluids. Even if the aspiration or evacuation of the fluid is not considered desirable from the point of view of treatment, the removal of 5 or 10 c.cm. with an exploring syringe for purposes of examination is a safe rule and one which has few exceptions.

Laboratory Technique.

Several points in the collection of the sample for examination are important. In the first place, when bacteriological examination is required no antiseptics should be used in sterilising the syringe. Again, in dealing with serous exudates such as tuberculous effusions it is a great help if clotting can be prevented. As a rule these fluids form a more or less dense clot within a few minutes of withdrawal from the chest. This clot collects in its meshes both cells and bacteria and renders microscopical examination unnecessarily difficult. The writer generally adopts the practice of running a portion of the fluid directly from the exploring syringe into a sterile test-tube containing 1·5 per cent. sodium citrate in physiological saline in the approximate proportions of one part citrate solution to two parts pleural fluid. The citrate solution should be freshly filtered and sterilised before use.

Most of the laboratory tests for thoracic puncture fluids have already been described by various workers, and therefore do not need any further note. As emphasised in a previous communication,[1] the writer has found the following to be the most useful: specific gravity, coagulable protein content (the Esbach and Aufrecht tubes are of little value), cell count, film and cultural examinations for bacteria, and immunological tests. A word of explanation may not be out of place here as to the value of the cell count and the various immunological tests.

A certain amount of confusion is more or less inevitable with regard to the so-called lymphocyte count. The origin of these cells is not always clear,[2] and it is easy to confuse them with degenerated endothelial cells, &c. Moreover, cells entangled in the meshes of a clot are difficult to examine. The presence of a large amount of protein in the fluid also renders staining rather unsatisfactory, and therefore washing and centrifugation are often advisable. The writer suggests that for the present it would be better to refer to these cells as small round cells as one does in describing the ordinary histological tubercle rather than as lymphocytes. The specificity of the lymphocyte for tuberculous infections is possibly not so definite as was formerly believed.

Before leaving the question of the cell count it may be useful to mention the question of the identification of malignant cells in pleural fluids. Most pathologists are now agreed that it is practically impossible to identify these cells in film preparations, and when one reflects that the majority of primary malignant growths of the thorax are the so-called lymphosarcomata of the mediastinum in which the cells, superficially at any rate, resemble lymphocytes the difficulty is seen to be considerably increased.

In tuberculous fluids in which the cell count or the bacteriological examination yields unsatisfactory results one or other of the various immunological tests may be used with advantage. These fluids frequently contain considerable amounts of antibodies which are helpful in laboratory diagnosis. As a single isolated test the writer would hesitate to base too much reliance on an immunity reaction for tuberculosis in the present state of our knowledge, but, taken in conjunction with other tests, it is not without value. The writer has had most experience of the precipitin test,[3] but fixation of complement and other tests have also been used by other workers.

Various Types of Puncture Fluids.

For purposes of description thoracic puncture fluids may be divided broadly into the following classes: (1) serous exudate; (2) hydrothorax; (3) hydro- and pyo-pneumothorax; (4) hæmothorax; (5) empyema; (6) very rare conditions such as chylous effusion, hydatid cyst, &c.

1. *Serous exudate.*—It is best to confine this term to inflammatory conditions in order to distinguish them from mechanical transudates. The commonest variety of serous exudate is the so-called simple or primary pleural effusion. The majority of these are now considered to be tuberculous in origin, though how the infection reaches the pleura is not quite clear. Probably the bacilli are first deposited in the subpleural lymphatics of the visceral pleura, but further investigation is needed as to the path of infection. Indeed, the whole question of the anatomical distribution of the lymphatics of the respiratory tract needs a good deal of investigation.

When withdrawn from the chest and allowed to stand in a test-tube for half an hour or so the fluid generally coagulates. From a laboratory point of view, these fluids have fairly definite characteristics—the specific gravity is high (about 1018), the coagulable protein content is about 5 per cent., the cells are almost entirely small round cells, cultures remain sterile, and tubercle bacilli are scanty and frequently difficult to find. Several reasons may be suggested as to why bacilli are not easily found. In the first place the large amount of tough clot adds to the difficulties of examination; secondly, the histological tubercles are beneath the endothelium of the pleura and not in direct contact with the fluid; thirdly, there is some evidence for suggesting, though it is by no means proved, that bacteriolysis goes on in the fluid. Nevertheless, if one is prepared to spend a sufficient amount of time on a prolonged search, tubercle bacilli can often be found. In the writer's experience they can be demonstrated in one-fourth of the cases. The value of immunological tests has already been dealt with.

Serous exudates are often met with also as a complication of well-established pulmonary tuberculosis. In these cases laboratory examination, though useful, is usually not absolutely necessary, since the diagnosis is quite obvious on clinical grounds. Ætiologically there is probably little, if any, difference between these secondary effusions in phthisis and the so-called primary effusions without obvious phthisis. From a laboratory point of view the secondary exudates are generally more chronic, the coagulable protein tends to be rather less in amount, the clot smaller, and bacilli perhaps rather easier to find. But there is no essential difference between the two conditions. The cell count is the most valuable test. Not infrequently a secondary pleural effusion in phthisis is confused with an effusion following pneumothorax; in the latter a predominance, polymorphonuclear cells is not infrequent and may help to distinguish the two conditions. The distinction is of some value to the clinician, since the prognosis in these two conditions may be very different. Secondary infection in simple pleural effusion is probably very rare.

2. *Hydrothorax.*—This term is used to distinguish a mechanical transudate from an inflammatory exudate. The most typical example is the transudate of chronic valvular disease. Here, though the hydrops pleuræ is frequently bilateral, the transudate is generally greater on the right side, owing, it is suggested, to the mechanical pressure on the azygos veins.[4] As the result of back pressure the fluid is frequently blood-stained; whilst the clot is small in amount and may be tinged reddish-brown by the blood. The specific gravity is low, the coagulable protein small in amount (0·5 to 1·5 per cent.), and the cells chiefly large vacuolated and degenerated endothelial cells. It is customary to include hydrops pleuræ of renal origin under the heading hydrothorax, but in the writer's experience the fluid in this

class of case more nearly approaches the character of an exudate than a transudate.

3. *Hydro- and pyo-pneumothorax.*—Pneumothorax, whether spontaneous or artificially induced by the physician, is frequently followed sooner or later by an effusion of fluid into the pleural sac. At least four varieties may be recognised—serous, sero-purulent, purulent, and septic or fœtid; so that it is often difficult to say where hydropneumothorax (serous effusion) ends and pyopneumothorax (purulent effusion) begins. Furthermore, the term hydropneumothorax is an unsatisfactory one, since the character of the fluid approaches more nearly that of an exudate than a transudate. A word of explanation is also necessary with regard to the fourth stage mentioned above—i.e., septic or fœtid. By this the writer means a pyopneumothorax in which secondary organisms have developed.

Spontaneous pneumothorax is generally due to pulmonary tuberculosis. Hence, in cases where the effusion which follows the pneumothorax is serous, the examination is practically the same as that carried out in an ordinary case of tuberculous exudation. As a rule, however, certain differences may be noted in the result of examination. In the first place, a serous effusion complicating pneumothorax is generally chronic and the fluid does not clot very readily. Also the fluid is rarely of such a clear amber tint as in simple tuberculous effusion; the amount of deposit on standing is, on the other hand, generally greater in pneumothorax. Not infrequently the cell count in the serous effusions of pneumothorax shows a predominance of neutrophil polymorphonuclear and endothelial cells, whereas a simple effusion, of course, nearly always gives a count of small round cells. Another difference may be noted with regard to the presence of tubercle bacilli. As already noted, bacilli are difficult to find in simple tuberculous effusions and often need special methods for their detection. In the serous effusion of a pneumothorax they can often be found fairly easily in an ordinary film preparation. There were 5 positive cases in a series of 9 (56 per cent.) examined by the writer, as against 25·7 per cent. (39 cases) in a series of simple effusions.

In the case of pyopneumothorax practically only one laboratory observation is necessary—viz., the bacterial content. Tubercle bacilli can generally be demonstrated fairly readily in stained films, and most secondary organisms can be detected with ordinary culture media. In a series (11 cases) examined by the writer 63·6 per cent. contained tubercle bacilli. Secondary infections are apparently not common. No cases were noted in the series of simple tuberculous effusions, one (11·1 per cent.) in the serous effusions with pneumothorax (an artificial pneumothorax case), and two (18·2 per cent.) in the series of pyopneumothorax. The organisms found were pneumococci in two cases and *Staphylococcus aureus* (and at a subsequent examination *B. pyocyaneus*) in the third. The presence of a purulent tuberculous fluid apart from pyopneumothorax is not common. Indeed, the fact that a purulent pleural fluid contains tubercle bacilli is strongly suggestive of a pneumothorax, even in the absence of clinical signs.

4. *Hæmothorax.*—The presence of blood in the pleura may be due to (1) a lesion of some neighbouring organ, (2) a general blood disease, or (3) trauma. The war has very much enlarged our knowledge of this last cause, and its effects. We are indebted to Grégoire and Courcoux[5] for a very full account of the condition. Although it may sometimes arise from a wound of the chest wall, hæmothorax is apparently most common in wounds of the lung itself. Wounds of the hilum are most serious, then those of the apex, whilst those of the base are least serious. Grégoire and Courcoux note that in a closed thorax in which asepsis has been maintained hæmothorax fluid is incoagulable, and remains so after withdrawal from the chest. Further, they note that the fluid is definitely anti-coagulative and prevents the coagulation of normal blood when the two are mixed together. Absorption takes place by hæmolysis. The cell count also yields interesting results. At first there is a marked though brief increase in the percentage of neutrophil polymorphonuclear cells. Later these cells diminish in number and mononuclear and endothelial cells increase, with signs of phagocytosis. Finally, a considerable eosinophilia occurs. This last phase is a point of considerable interest. An eosinophil count in pleural fluids has been observed by other observers, without a satisfactory explanation. The writer has noted one such case, which ultimately proved to be an effusion secondary to carcinoma. Grégoire and Courcoux discuss the causation of this eosinophil production at some length. Amongst the various causes suggested there appears to be most evidence in favour of the view that the eosinophilia in these cases is in some way associated with toxæmia.

5. *Empyema.*—The production of pus in the pleural sac may be due to many different lesions. Occasionally it is the predominating feature of a pyæmia, but, as a rule, it is a local disease arising from extension of septic infection from one or other of the adjacent organs, and by far the commonest cause is pleuro-pneumonia or broncho-pneumonia. The pus may be thin, with a heavy deposit when allowed to stand, and a supernatant layer of opalescent fluid, or it may be thick and homogeneous. Usually it is of a creamy yellow or yellowish-green colour with a faint sickly smell. Less commonly it is of a bright-green colour or dark-brown with a fœtid odour. Attempts are often made to associate these physical characters with certain micro-organisms, but only a very rough-and-ready bacteriological diagnosis can be made in this way. The typical creamy yellow pus of empyema in children and young adults following pneumonia is generally due to the pneumococcus. The vivid green pus is often due to *B. pyocyaneus*, but is probably rarely a primary infection. The dark fœtid pus occasionally met with does not appear to be associated with any one organism. The writer has noted *B. proteus*, streptococcus, and pneumococcus, and no doubt numerous other organisms have been found associated with the condition. The organisms are occasionally anaerobic.

One or two practical points are worthy of note in dealing with the bacteriology of empyemata. Gram-positive diplococci in stained films are not always pneumococci, since every coccus must, in the course of reproduction, pass through the diplococcal stage. Only typical cultures, therefore, can be relied upon. Anaerobic cultures also are important. Streptococci, again, are occasionally anaerobic in empyemata.

The bacteriological content of the pus is of some value in prognosis. Pneumococcal cases, for example, generally do better than streptococcal ones. Secondary infections also affect the prognosis considerably. Pneumococci tend to die out soon after the operation, and if the sinus be kept free from other organisms healing takes place rapidly. A secondary infection—e.g., *Staphylococcus aureus* or *B. pyocyaneus*—generally delays resolution very considerably. In a series of 33 cases the writer found streptococci in 12 per cent., pneumococci in 58 per cent., staphylococci in 12 per cent., mixed infections in 12 per cent., and other organisms in 6 per cent. The following table shows an analysis of cases from three different sources.

Bacteriological Findings in Empyemata.

Authors.	Total No. of cases.	Strepto-coccl.	Pneumo-coccl.	Staphylo-coccl.	Tubercle bacilli.	Other organisms.	Mixed infections.	Sterile.	Organisms not recorded.
		%	%	%	%	%	%	%	%
Gee & Horder* (St. Bart's.) ...	32	20	75	—	—	—	—	—	5
F. T. Lord†	137	20·4	39·4	3·6	—	2·4	16	18·2	—
Holt & Howland‡ (Babies' Hosp., New York) ...	115	14·4	64	7·8	0·5	0·5	12·8	—	—
—	284	18·26	59·5	3·8	0·16	0·96	9·6	6·06	1·66

* Allbutt and Rolleston's System of Medicine, 1912. † Osler and Macrae's System of Medicine, 1915. ‡ Diseases of Infancy and Childhood, 1917.

During the war a number of somewhat anomalous cases of empyema have occurred both in military and civilian hospitals. Many of them have followed attacks of purulent bronchitis, influenzal broncho-pneumonia, &c., and the mortality has been high. The bacteriological findings in these cases are not yet available, but there seems to be a general impression that the *B. influenzæ* is rarely to be found in the pus, even when the illness can be traced clinically to an attack of influenza. Pneumococci and streptococci, on the other hand, are apparently commonly found, especially the latter. This fact is interesting in view of the opinion that under certain circumstances the growth of *B. influenzæ* seems to be favoured by symbiosis.[6] It is

now recognised that many of these cases of empyema following influenza tolerate operation for resection of rib very badly. Bourne notes that this is especially so with the acute streptococcal cases.[7]

6. *Rare varieties of thoracic puncture fluids.*—These are so rare that they need only the barest mention: (1) chylothorax resulting from rupture of the thoracic duct, and (2) hydatid of the pleura.

Conclusions.

1. In a serous fluid, especially if tuberculosis be suspected, coagulation of the fluid should be prevented whenever possible. If a clot forms, it generally contains most of the bacteria and cells and should therefore be examined carefully.

2. More use might be made of immunity tests in serous tuberculous fluids.

3. Though the predominance of the small round cell (so-called lymphocyte count) is almost invariable in simple tuberculous effusions, it is not so in effusions following pneumothorax. In the latter, predominance of polymorphonuclear cells is not uncommon.

4. In the writer's series tubercle bacilli were found in 63·6 per cent. of pyopneumothorax cases, in 55 5 per cent. of serous effusions with pneumothorax, and in 25·7 per cent. of apparently simple tuberculous effusions.

5. In the same series the following were the percentages of secondary infections: in pyopneumothorax, 18·2; in serous effusions with pneumothorax, 11·1; and in simple tuberculous effusions, none.

6. Contrary to the results of earlier observers, Grégoire and Courcoux found during the war that in cases of hæmothorax clotting did not take place if sepsis could be prevented. Absorption was generally preceded by hæmolysis. They noted also a characteristic cell count—first polymorphonuclear, then mononuclear and endothelial, and, finally, eosinophil cells predominating.

7. In the case of empyemata the series examined by the writer showed pneumococci 58 per cent., streptococci 12 per cent., staphylococci 12 per cent., mixed infections 12 per cent., and other organisms 6 per cent. The pneumococcus is probably the most prevalent organism, and is approximately four times commoner in occurrence than the streptococcus.

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MILD BACILLARY DYSENTERY:

CLINICAL INVESTIGATION AND DIAGNOSIS.

BY JOHN RYLE, M.B. LOND.,
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THE intention of this paper is to chronicle certain clinical observations on diarrhœa and dysentery made in France and Belgium. The notes are based partly on a series of 107 consecutive admissions to a field ambulance specially employed in the sorting of diarrhœa cases during two weeks of August and September, 1918, and partly on previous experience gained at a C.C.S. on the same front during 1916 and 1917.

The numerical records available are too small to allow of any statistical deductions, but the clinical impressions formed were well defined, and would seem to warrant the claim that a high percentage of cases of bacillary dysentery may be diagnosed clinically by careful observation, and strongly suspected even in the absence of such classical signs as the passage of blood and mucus in the stools. Furthermore, in view of the impossibility of obtaining a thorough bacteriological examination of all cases of diarrhœa it is claimed that greater stress should be laid on the value of clinical investigations. It is urged that the clinician should establish a better liaison with the laboratory, and acquire discrimination in his choice of cases for investigation there. Only by collaboration can real efficiency be achieved.

How the Investigation was Carried Out.

Clinical diagnosis, in this as in other fields, is mainly dependent on routine observations and records. The cases specifically referred to below were detained, as stated, in a field ambulance specially allocated for the work. Every case in which diarrhœa was present or there was a reasonable presumption of diarrhœa (for it must be remembered that diarrhœa is a good "hobby" for the malingerer, particularly during its seasonal prevalence) was detained for investigation and treatment for periods varying from four days to a week.

Brief notes were kept on the field medical cards of the following points:—1. Duration of sickness. 2. Number of stools (approximate) per diem. 3. Presence of blood, mucus, or pus in stools. 4. Temperature, morning and evening. 5. Bacteriological findings. 6. Progress. 7. Disposal of case.

Apart from the ordinary clinical examination of the patient the first stool, and in suspicious cases as many subsequent stools as feasible, were inspected. White enamelled bed-pans are essential. The only other common complaint among soldiers on the Western Front involving the passage of blood—piles—presents no serious difficulties of differentiation. On this front also amœbic dysentery is only seen in occasional return cases from the East.

No elaborate arrangements are necessary in an advanced diarrhœa or dysentery-eliminating centre. A good nursing orderly, a sufficient supply of white enamelled bed-pans, with shelves to hold and a boiler in which to sterilise them, are all that is required, apart from adequate tentage or hut accommodation and latrines.

A rectal swab, plated direct and dispatched to the laboratory in accordance with the system in use by Captain Macleod, R.A.M.C. O.C. No. —— Mobile Laboratory, who made the investigations, was taken from every case. By this method any risk of contamination, cooling, drying, or sterilisation of specimens in the bed-pans is avoided.

Classification of Cases.

The cases were roughly grouped into "clinically positive"—that is to say, cases with blood and mucus; "clinically suspect," cases with no blood or mucus, but other suggestive features; and "clinically negative," cases which were considered at first not to be dysenteric infections.

All "clinically positive" cases were evacuated at once, according to instructions, to a special C.C.S., and consequently bacteriological details were only obtained in a few of these. The "clinically suspect" cases were evacuated on bacteriological confirmation by a first or second "swab." If the reports were negative and convalescence good they were returned to their units.

Clinically and bacteriologically "negative" cases after being on a full diet without relapse for 24 or 48 hours were discharged to their units, but excused duty for a further two days. All except the mildest cases were put on a "starvation" or "milk" diet for the first 24 hours and promoted, as their symptoms permitted, through "light" to "full" diet. Magnesium sulphate, ℥ i. hourly for six doses, was given as a routine on admission. All "ordinary diarrhœas" made a rapid recovery under this régime, and this was a feature which distinguished them from the clinically "suspect" and "positive" cases.

Results.

The findings were as follows:—

In a total of 107 cases there were 36 "positives." Of these 26 were "clinically positive," and of these 26 cases 7 were bacteriologically confirmed, 8 were reported negative on a single examination, and 11 were not "swabbed."

Of 14 "clinically suspect" cases 6 were "bacteriologically positive" (5 on a single and 1 on a second examination). Of the 8 negatives 6 were examined once and 2 twice.

A "positive" bacteriological report was received in 4 other cases which had been recorded as "clinically negative." Although two of these had had initial pyrexia and one a mild continued diarrhœa the symptoms were so slight and convalescence so good that they had not been put in the "suspect group."

Of 17 bacteriological "positives" 13 were Flexner and 4 Shiga infections. The Flexner cases were habitually milder than the Shiga cases. The initial pyrexia in the Shiga cases was usually higher, often reading 102° or 103° F., whereas in the Flexner type it seldom exceeded 101°. Pain, tenesmus, and urgency were usually definite in the Shiga, and frequently absent in the Flexner infections.

Blood and mucus appeared within the first 24 hours, and vomiting and prostration were early symptoms with Shiga, while with Flexner infections blood and mucus, if present, were often a late or transitory manifestation, and vomiting and prostration did not occur.

Nearly all the "mild cases" in this series were of the Flexner type. Counting as "mild cases" those in which blood and mucus were a late or transitory manifestation or absent altogether, 17 of the total series of 36 "positives" were "mild." *Stated differently, 17 out of 88, or one-fifth, of those cases, which with a cursory examination would have been regarded as diarrhœas, were proved to be dysenteries. Thirteen of these were diagnosed or suspected clinically.*

With regard to the passage of "blood and mucus," or "pus and mucus," it was noted that in 7 cases this evidence was not present on the first inspection. The value of repeated investigations is very great. Mucus alone was noted 6 times, but its presence or absence is very hard to determine by an ordinary naked-eye inspection of the pan.[1] Mucus was present in one instance in a formed, solid stool in a case previously "suspect" on other grounds and later confirmed by the laboratory.

Diagnostic Features in Mild Bacillary Dysentery.

In the absence of blood, mucus, and pus the following were found to be the most important features of mild bacillary dysentery.

(1) *Initial pyrexia.*—This may be no higher than 99°, and seldom reaches 102°. The descent to normal is usually rapid, and there may be no pyrexia after the first few days. In some cases there is an irregular evening pyrexia during the first week. Of 36 "positive" cases 23 had pyrexia on or shortly after admission. Many cases were not admitted until after the second or third day. Of 71 "negatives" 21 had pyrexia.

(2) *Slight continued diarrhœa frequently associated with griping pains, in spite of routine treatment*, or (3) *Relapse of diarrhœa.*—Of 25 cases which were recorded as having "continued diarrhœa," "slight continued diarrhœa," &c., 14 were "positive." Of 13 cases in which there was an association of "initial pyrexia" with "slight continued diarrhœa" or a relapse, 9 became clinically or bacteriologically "positive," and 4 were negative.

(4) *Frequency and urgency.*—In the early stages these symptoms are also suggestive. Any case in which the number of stools reaches or exceeds 20 for the 24 hours should be regarded with great suspicion. Of 13 of such 10 were "positives."

(5) *A worried, unhappy expression*, together with a slight pallor, in patients complaining of a persistence of diarrhœa.

(6) *A redness and laxity about the anal orifice.*

The figures quoted above are of little value except in so far as they lend a slight support to the clinical claims, which, being based mainly on personal impressions, are difficult to emphasise sufficiently.[2]

Conclusions.

1. Bacillary dysentery is in all campaigns a prominent and, at times, a very serious cause of sick-wastage.

2. The mild cases, usually regarded as cases of "simple diarrhœa," are apt to be retained with their formations or quickly returned to duty from advanced medical units. They are numerous, and it is reasonable to suppose that they constitute one of the foremost factors in sustaining epidemics in the field.

3. The bacteriological examination of all cases of diarrhœa during seasons of prevalence is too big a problem, and single negative reports are insufficient.

4. Bacillary dysentery is susceptible of clinical recognition in a high proportion of cases, and even in the absence of blood and mucus from the stools. It is important that the clinician should acquire a knowledge of what are the suspicious features of the disease in order that he may eliminate cases for laboratory investigation.

Thanks are due to Captain Macleod for his kind and efficient coöperation, and to Lieutenant-Colonel E. C. Lang, D.S.O., R.A.M.C., O/C. No. —— Field Ambulance, both for permission to publish these notes and for the excellent arrangements which made their preparation possible.

[1] Sliding the specimen across the tilted pan often reveals the more slowly moving mucous particles.

[2] Specimen charts and other supplementary records were submitted, but have been omitted owing to lack of space.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

A CASE OF INTUSSUSCEPTION TREATED BY RESECTION,

WITH RECOVERY, AT THE AGE OF JUST UNDER 3 MONTHS.

BY E. R. FLINT, F.R.C.S.ENG.,

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MY object in reporting this case is two-fold. First, I believe it is the youngest case on record which has recovered. F. W. Collinson describes a case of a child 3 months old successfully treated by excision and union with a Mayo Robson bobbin; this was reported in THE LANCET of Oct. 19th, 1907. Secondly, I should like to comment on the treatment adopted.

Patient, a male, aged one day less than 3 months, was admitted to the Leeds General Infirmary on July 25th, 1916, suffering from acute intussusception. The child was plump, and up to onset of illness quite healthy. The acute attack began 48 hours ago, with spasms of acute abdominal pain, causing it to draw up its legs and scream. In the intervals it was apparently quite comfortable at first, but later on it developed the characteristic sunken eyes and restlessness. It had vomited twice; no natural action of bowels since attack started; had passed blood and mucus in small quantities on several occasions.

On admission the child had a sunken appearance about its face with a rather anxious expression, but apparently comfortable, until an attack of pain caused it to scream, writhe about, draw up its legs and harden its abdominal muscles as though trying to defecate. Its pulse was about 130; a tumour of curved outline with its concavity towards the umbilicus could be felt on gentle palpation; deep pressure at once started off another spasm. Rectal examination revealed the apex of the intussusceptum, which could be felt in the lower part of the sigmoid.

The child was sent to the ward and put on subcutaneous saline infusion until it had had three pints; this was pushed in rapidly, taking about two hours; it was wrapped up in a suit of Gamgee and put close to the ward fire. Still in its Gamgee suit, it was then taken to the theatre and the operation performed under open ether, with the child lying on a water-pillow filled with hot water.

The right rectus was split, and two fingers reduced the intussusception as far as the right iliac fossa. The ascending colon, cæcum, and terminal ileum were then brought out on to the abdominal wall. Careful and sustained pressure failing to effect reduction, it was decided to resect. The last 4 or 5 inches of the ileum, together with the cæcum and ascending colon, containing the intussusception, were removed in the usual way—i.e., the peritoneum on the outer side of the colon was incised and the bowel scratched inwards, the vessels in the leaf of peritoneum were ligatured, and the bowel divided between clamps. The clamp on the side of the remaining gut had longitudinal grooves; a running stitch of linen thread was placed around this clamp and this instrument slipped off whilst the stitch was drawn tight. The linen thread was then taken back, bringing together peritoneal surfaces so as to infold any mucosa which might be showing; it was drawn tight, thus producing a purse-string effect, and tied. The ileum was then laid alongside the transverse colon in an iso-peristaltic direction and a large lateral union done; the gloves were changed and the gap in the peritoneum closed.

There was a certain amount of shock, but recovery was otherwise uneventful. The child was kept on subcutaneous saline infusion for two days. I have seen the child several times since, and it is quite well.

On examination of the specimen it was found to begin in the last 2 in. of the ileum, as the majority of intussusceptions do. No actual cause for the origin was found; the walls were extremely thick, but this might quite well have been the result and not the cause of the condition.

Treatment.

The operation I performed is excessively easy in so young a child. The peritoneal cohesion, which takes place on the outer side of the colon, has scarcely occurred at this early age, and the amount of fixity which there is has been loosened by the drag of the intussusception. The time required, therefore, is not long, and most of the work can be

done outside the abdomen with ease. This is, in my opinion, the quickest and best method of treating irreducible intussusceptions, and its applicability up to the present has been limited to these cases. I think it deserves a trial in those cases which have to be forced out by severe pressure and dilating processes. The mortality of resection is undoubtedly high, but so is that of these methods just referred to. In my experience they die, with few exceptions, of a combination of shock and peritonitis, the latter resulting from damage done during the period of intussusception as much as that done during the manipulations for its release.

I do not think enough attention has been paid to the pre-operative treatment of these cases. The high mortality, even amongst those cases in which reduction is easily accomplished, is due to shock, and the shock is largely accounted for by the loss of fluid, partly from vomiting, and partly from filling of the intestine with excess of fluid. An hour or two before operation devoted to giving subcutaneous saline in relatively large quantities, I am sure, gives better prospects for recovery than immediate operation, such as is the general rule. During this period the pain should be prevented by some form of opium, and heat should be applied as well as at the time of operation.

Quick operating is essential, but above all peritonitis must be prevented. There is some chance of recovery from shock, but none from peritonitis.

During the last three years I have operated on 33 cases of intussusception with 14 deaths, a mortality of 42·4 per cent.; the average mortality of published statistics including all types of the malady is just over 50 per cent. I attribute the improved results to the attention paid to pre-operative treatment. Of these 33 cases the method adopted and the result were as follows:—

Reduction: 6 cases, 2 deaths.
Reduction and appendicectomy: 14 cases, 1 death. } Total mortality 15 per cent.
Resection: 13 cases, 11 deaths. Mortality 83·9 per cent.

These resection cases were all impossible to reduce.

Causation.

As regards the type of intussusception, 3 were limited to the small intestine, 1 to the large, and all the others had started in the last 2 in. of the ileum. There is no doubt this is the susceptible spot, though why, I was unable to determine. The last 2 in. of the ileum was always thicker than any other point, but whether this was cause or effect I could not be sure. There was no particular pathological lesion, apart from the œdema and stiffness. But that there is a difference in structure here from anywhere else in the small intestine has been shown by Keith.

He has demonstrated that in this last 2 in. of ileum there is a neuro-muscular junction similar to that seen in the heart at the root of the superior vena cava, where the cardiac movements originate and where a demonstrable lesion can be found in certain pathological states of the heart movements. I have seen no record of a microscopic examination of the terminal part of the ileum for lesions of this apparatus in intussusception, nor do I suppose any would be found, for the pathological lesion, whatever it may be in intussusception, is probably more of the nature of a temporary exaggeration of a normal activity and not truly pathological in the beginning. But the commencement of the great majority of intussusceptions at the very place where this curious Auerbach's tissue (Keith) is situated is worth consideration.

A great many causes have been suggested to account for the incidence of this complaint, most of them, I think, being beside the mark, inasmuch as they would be likely to produce intussusception in unhealthy children; whereas it is notorious that the subjects of this malady are in nearly all cases fat, vigorous, and, one might almost say, particularly healthy specimens. Even the suggested lesion of swollen lymphoid tissue, said to be found in this situation, would hardly fit in with the perfect health which is so usual, and, moreover, can be accounted for as satisfactorily by considering it the effect of the lesion it is supposed to cause.

I think it is possible that as the result of some temporary irritation this neuro-muscular tissue goes into a state of spasm, excites active peristaltic movement behind, and is, as it were, thrust on at the head of the intussusception through the ileo-colic sphincter. If this is so the irritant must be one very peculiar to infant life, for over 75 per cent. of intussusceptions occur within the first 12 months after birth, and more commonly about the sixth and seventh months. It may be that the nervous system generally is more irritable about the time of early dentition, but I think it is more probably something to do with digestion.

It seems that the ileo-colic sphincter relaxes to allow alkaline food to pass, and contracts again as soon as some has gone through until the cæcum has had time to render it acid, which it does by means of the activity of the bacteria it contains. This is the same sort of principle as at the pylorus, though in the reverse order. It may be that for some reason—e.g., overeating—the ileal contents are brought into a state of temporary over-alkalinity, and thus leads to a spasm of the neuro-muscular tissue. I merely suggest this as a possible explanation to fit the conditions to the facts that it occurs in fat children and in a position where unusually strong spasm is possible. It might also explain the not infrequent acute spasms of abdominal pain, if one were to conceive of the same thing happening in a subacute degree, which are so common in well-fed children.

This state of affairs would, of course, be much more likely to occur in infants, for the reason that a mechanism of this kind obviously requires time for adjustment. Possibly the frequency with which children vomit may have some connexion with the adjusting of the pyloric mechanism.

AN IMPROVED METHOD FOR THE ESTIMATION OF SUGAR IN THE URINE AND BLOOD.

BY P. J. CAMMIDGE, M.D. LOND.

FURTHER experience with the volumetric method for estimating sugar I described in THE LANCET of April 21st, 1917, p. 613, has confirmed the accuracy of the results given with quantities above 0·5 per cent., but with percentages below that amount too low a reading may be obtained unless further precautions than those described are taken against oxidation, especially in warm weather. The original experiments in working out the method for blood sugar happened to be made with freshly distilled water and in the winter; later it was found that when distilled water which had stood exposed to the air for some time was used with test solutions of sugar containing under 0·5 per cent. the readings were lower than they should have been, and that the variation from the expected result differed with the age of the water and the temperature of the air. Eventually it was proved that the error arose from dissolved oxygen in the water and solutions employed in the test.

When, therefore, a urine is expected to contain a low percentage of sugar, under 0·5 per cent., and with all blood and other fluids containing smaller amounts, the water to which the iodine solution is to be added should be thoroughly boiled, to expel dissolved air, and cooled, immediately before the estimation is to be made. It is also advisable that the alkaline copper solution for sugar estimations with urine should be boiled in a small conical flask, provided with a loose funnel as a stopper, instead of in a beaker as previously described, and that the required amount of urine should be run into the boiling fluid from a pipette when the air dissolved in the solution, and contained in the flask, has been expelled.

With blood, &c., the 7·5 c.cm. of filtrate and 1 c.cm. of sodium carbonate solution are boiled together in a similar way in a small conical flask fitted with a funnel-stopper, and the 1 c.cm. of modified Benedict solution is added after they have boiled for a few seconds. The water used for diluting the iodine solution and for washing out the flask, &c., should have been recently boiled and cooled. With these additional precautions the method gives uniformly reliable figures, even with the small amount of sugar in normal urine and blood.

Nottingham-place, W.

DOGS' PROTECTION BILL.—At a meeting of the Royal College of Surgeons of Edinburgh held on May 19th the following resolution was unanimously approved:—

That the Royal College of Surgeons of Edinburgh respectfully desires to express its hope that the present Dogs' Protection Bill, now before Parliament, may *not* be allowed to become law, as in its view, should the Bill become law, the effect would be detrimental to the scientific advancement of surgery and medicine and would react on the general public, who derive the benefit from scientific research.

The resolution has been forwarded to the Secretary of State for Home Affairs.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

SECTION FOR THE STUDY OF DISEASE IN CHILDREN.

Clinical Meeting.

A MEETING of this section was held on May 23rd, Dr. J. PORTER PARKINSON, the President, being in the chair.

Lymphangeioma of the Tongue.

Mr. B. W. HOWELL showed a case of Lymphangeioma of the Tongue in a boy aged 6. The affection of the tongue had first been noticed when the child was 3 years old and spread from the base forwards. The vesicles formed often broke down and the tongue occasionally swelled; it then protruded from the mouth and became painful, and the tonsils and salivary glands enlarged, salivation being profuse.

A Case for Diagnosis.

Dr. E. A. COCKAYNE showed a case for diagnosis. The patient, a boy, aged 11, had influenza in December, 1918, and since had never been in good health. One month ago he became drowsy, listless, and lost appetite. On examination he was found to have wasted, and slight jaundice was present. The liver was very large and the spleen was enlarged also. The enlarged liver was smooth, firm, and painless. There were neither ascites nor enlarged glands; the abnormal veins were not conspicuous. The stools were normal. The urine contained a trace of bile but no excess of urobilin. A blood examination was not abnormal and the Wassermann reaction was negative. There was an evening temperature of about 101° F.—SIR H. D ROLLESTON thought that the probable diagnosis was tuberculosis. Certain cases of tuberculosis of the spleen fitted the signs, as did also tuberculosis of the bile-ducts, though it was very rare. The condition might also be post-influenzal; he had seen cases of protracted enlargement of the liver after influenza, which ultimately subsided. Lardaceous disease was another possible diagnosis.—Dr. F. PARKES WEBER agreed that tuberculosis was the probable diagnosis. A possible alternative was Hodgkin's disease of the acute form. It might be a case of the latter involving retro-peritoneal glands.

Abdominal Tuberculosis.

Dr. ERIC PRITCHARD showed a case of Abdominal Tuberculosis. The patient, a girl, aged 3 years and 4 months, had influenza in November. The complaint now was abdominal pain every day and vomiting which relieved the pain. The motions were white and had contained blood. There were loss of weight, sweating, and pallor. In the abdomen was a ridge about an inch wide below the costal margin in the left hypochondriac and left epigastric regions, and separated from the costal margin by a band of resonance. The rounded outline of the mass in which it ended had suggested hydronephrosis. A radiogram showed large deposits, parts of which were very opaque, indicative probably of calcification.—The PRESIDENT favoured the diagnosis of matted intestine with tuberculous deposit around it.

Swelling of Joints.

Dr. CHARLOTTE A. KING showed a boy with Swelling of the Right Knee-joint. At first it resembled acute rheumatism and subsided with salicylates. The swelling appeared again later. A Wassermann reaction was positive, but the joint had not reacted much to vigorous antisyphilitic treatment.

The PRESIDENT showed a girl, aged 12, with Swelling of the Right Ankle and Left Elbow. The swelling of the elbow was periarticular and partly intracapsular. It felt pulpy and was now unaccompanied by pain. The ankle-joint was similar, it moved easily without pain. To a great extent the swelling was bony. There had been evidences of inflammation at first. A radiogram showed considerable changes in the bones, and some periostitis. The Wassermann was negative.

Discussion.

For discussion the two cases were taken together. During its course Dr. COCKAYNE said that three weeks ago he had treated a case resembling that shown by Dr. King, but both knees were affected. There were neither keratitis nor Hutchinson's teeth; no other evidences of syphilis were present except a positive Wassermann reaction. Antisyphilitic treatment had led to very great improvement.—Dr. H. CAMERON thought that too much stress had been laid on the Wassermann reaction. He considered the knee-joint was tuberculous and that the second case was one of syphilitic arthritis.—Dr. G. DE B. TURTLE suggested that the second case was one of Still's disease.—Dr. F. S. LANGMEAD agreed with Dr. Cameron that in regard to a Wassermann reaction one ought not to be unduly influenced, since syphilis was common and other lesions of joints were also common. The arthritis in the first case was unilateral, was unaccompanied by the usual associated evidences of syphilis (keratitis, deafness, Hutchinson's teeth), and had not reacted to efficient antisyphilitic treatment. Consequently he doubted its syphilitic origin. On the other hand, it had begun like acute rheumatism, and at first had reacted to salicylates. He suggested that it was a case of subacute intractable rheumatism of one joint, a condition occasional though rare. With regard to the second case, he pointed out that the radiogram showed destructive changes out of proportion to proliferative ones, and favoured the diagnosis of tuberculosis. At first sight it certainly resembled rheumatoid arthritis in children, but with the joint condition so advanced he would have expected some enlargement of spleen or glands; moreover, the radiogram was dissimilar.

SOCIÉTÉ DE BIOLOGIE, PARIS.—The following is a summary of some of the papers read at a meeting of this society held on May 10th:—

Phocas (Réunion biologique d'Athènes).—Adrenal Hyperglycæmia.

P. énte une série de dosages du sucre virtuel et du sang faits avant et après l'injection d'adrénaline chez des lapins bien nourris et chez des lapins tenus à jeun; le sucre virtuel du sang des lapins bien nourris ne paraît pas influence par l'injection de l'adrénaline. Mais les substances qui pourraient libérer le glucose sous l'influence de l'adrénaline peuvent toujours être immédiatement réformées par du glucose provenant du glycogène hépatique. Par contre, les résultats ont été beaucoup plus nets sur les lapins à jeun et la diminution du sucre virtuel sous l'influence de l'adrénaline devient chez eux évidente.

Boez et E. Duhot (Réunion biologique de Lille).—Antibodies and Prognosis in Tuberculosis.

La présence des anticorps tuberculeux est un indice de haute valeur en faveur de l'existence d'une tuberculose pulmonaire en activité. Si l'on considère les divers stades de la tuberculose pulmonaire, la courbe des anticorps s'élève pendant la 1ère et 2e périodes, se maintient ou s'accroit au début de la 3e période; à la phase ultime des anticorps peuvent disparaître brusquement. Si l'on considère le mode évolutif de la tuberculose il n'y a guére de parallélisme entre la teneur du sérum en anticorps et la gravité ultérieure de la maladie, et les anticorps ne peuvent être considérés comme des éléments essentiels de la défense contre l'infection tuberculeuse. Avec la cuti-réaction, il n'existe aucune relation nécessaire de coexistence ou d'intensité.

SOCIÉTÉ DE THÉRAPEUTIQUE, PARIS.—At a meeting of this society held on April 9th the treatment of hæmoglobinuric bilious fever was discussed by Dr. H. Darré, who maintained that quinine was indispensable and could be given without any ill-effects provided that the following method was adopted. The drug should not be administered during the attack, especially at the onset, nor on the two or three days immediately preceding it, but at the time when the number of parasites in the blood was lowest—i.e., on the second or third day following an attack. A minimum amount of 6 g. should be given weekly in three doses of 2 g. each. Thus on Mondays, Wednesdays, and Fridays 2 g. of quinine hydrochloride in cachets or solution should be given in doses of 1 g. before each principal meal, or in cases of gastric intolerance in doses of four ½ g. pills before each meal. Intravenous or subcutaneous injections should be avoided, in the first place because it was desirable that a large amount of quinine should not pass rapidly into the circulation, but chiefly because it was impossible to introduce 2 g. of a quinine salt into the system in 24 hours. The treatment should be continued for from eight to ten consecutive weeks, and should be followed by a course of quinine in which the drug should be given in doses of 1 g. three times a week for from three to six months according to the severity of the case. During the four days in the week in which the patient was not taking quinine, iron and bone marrow should be administered for from three to four weeks.—Dr. G. Leven recorded a case of Increase of Weight Effected by a Diet of Low Caloric Value. The patient was a woman, aged 25, who had suffered for several years from dyspepsia and had therefore taken an insufficient amount of nourishment so as to lessen the pain she felt after meals. At the commencement of treatment her weight was 37·8 kilos, and 11 months later she had gained 15·5 kilos, although the caloric value of the diet was much below normal, the number of calories ranging from 1600 to 1900 in the 24 hours.

THE LANCET.

LONDON: SATURDAY, MAY 31, 1919.

A Medical Services Bill.

THE National Insurance Act and the Medical Research Fund, which was first established in 1913 in connexion with that Act, form a Government recognition of the value of health as an asset of the State; and the recent discussions on medical research at the Health Conference of Insurance Organisations, as well as the foundation of a People's League of Health with a Medical Council, show that the question is by no means neglected by the community at large. The inception of a Ministry of Health shows a similar desire on the part of those in authority, if not to insure that the country be healthy, at least to try to make it so; and now it is understood that Dr. ADDISON is at present at work on the second stage of the Ministry of Health proposals, and that the result will be shown in a Medical Services Bill which he hopes to introduce in the House of Commons at an early date. The underlying purpose of the Bill will be to deal with the problems for the solution of which the establishment of a State medical service has been freely urged in certain quarters, though no one familiar with the problems involved expects or desires any transformation of the whole medical profession under a regimented scheme. During the debates upon the Ministry of Health Bill there was ample discussion of the necessity for transferring at an early date to the new Ministry the medical side of the Poor-law. This is one of the questions which will certainly be tackled in the forthcoming measure, and our readers know well that reforms in this direction are overdue. The Poor-law authorities have been sorely tried, hardly worked, and unjustly abused, but all who know wherein lie the real problems of medicine see that it is high time to relieve the Poor-law authorities of such responsibilities as the provision of institutional treatment for the sick and infirm, and for maternity cases. The Ministry of Health Bill will possibly become law before Whitsuntide, and there is a strong desire at the Local Government Board to proceed with its corollaries as quickly as possible. Dr. ADDISON has stated that he will put his proposals regarding medical services before the Medical Advisory Committee, set up under the Ministry of Health Bill, before formulating them in final shape, and no doubt he will thus receive a great deal of assistance in his effort to meet admitted difficulties for which a plethora of remedies have been suggested, none of which has escaped criticism.

Out of the agony which the nations have endured so long, and are still enduring, there emerges one cardinal fact—that this world must be made a better place than it has been hitherto for human beings to live in. The war had its composite causes, and the historian of the future will evaluate these and arrange truths in perspective; but allied to all these causes we had a world-wide unrest. And this remains—witness the strivings after more leisure and better wages, not to be used in any unworthy ease, but as furnishing due opportunity for racial and self-improvement. Hence, too, the growing realisation of the fact that the members of no one class can afford to do without the members of another class or of other classes, inasmuch as, to go back to the old Roman apologue, the Belly and the Members are interdependent. But in trade and fiscal questions, and in all matters arising out of the proper interrelations of capital and labour, of employer and employed, the community of interests is hard to see; at any rate, the protagonists on either side never see it alike. In questions of health the reverse prevails, for all people place good health ahead of other national assets. Among the many material benefits for which men are seeking, there is none more desirable and more valuable than health. Without health, riches, leisure, opportunities for gaining knowledge are valueless, and without health a nation soon decays, not only physically but morally. This is universally known, while it is also generally recognised that a high standard cannot be reached or maintained without medical progress going hand-in-hand with medical research. A Medical Services Bill, following on a Ministry of Health, must regard medicine and its professors in a thoroughly liberal way. The arrangements for coördinated work, the discretions and powers of central control, and the creation of part-time offices—all of which we shall see provided—must be directed towards improving the outlook of the general practitioners, if the work is to fall into suitable hands. And the spirit of research must be cultivated.

If research be endowed by the State, as it should be, the responsible heads of the department must be men skilled in the respective branches of science into which research is to be made, and workers should not be hampered by a bureaucracy whose outlook is bounded by statistical tables in Blue-books. Admirable scientific results in the fields of chemistry, metallurgy, glass working, dyeing, and other commercial operations have been obtained by coördination, and the example requires to be followed in medicine. The organisations assisting and controlling such commercial research have been bodies of men who are experts in their various lines, supplied by the Society of Chemical Industry, the Institute of Metals, and the various iron and steel institutes. In 1915 the Department of Scientific and Industrial Research was appointed by an Order in Council to direct the application of any sums of money provided by Parliament for the organisation and development of scientific and industrial research. Recently this department has established a scheme for the formation of research associations, which are companies established under the Companies Acts by the firms in any industry which desires to apply science to the problems of manufacture. The

aim of the Government in promoting these research associations has been from the first to leave them, when once satisfactorily established, to manage their own affairs. It has been realised throughout that if help is to be effective it must increase the independence and initiative of the manufacturer without tying him to the routine of Government administration. This is the spirit in which it is to be hoped that future schemes of medical research will be assisted and worked out.

The Lettsomian Lectures on Jaundice.

THE pathology of jaundice was for a long time a subject of controversy, especially in those cases not obviously due to obstruction in the larger bile passages. Eventually it became clear that the cases of this kind formed a definite group, now classed as hæmo-hepatogenous or toxæmic jaundice. It has so happened that owing to exigencies of war industries certain forms of this variety due to known chemical poisons have been numerous, while other forms due to known or unknown infective agents have been found in considerable numbers among the troops in different parts of the world. It is more especially with these forms of jaundice that Dr. W. H. WILLCOX has dealt in his Lettsomian lectures delivered before the Medical Society of London, which appear in abridged form in THE LANCET of May 24th and the current issue. It is a strange and fortuitous but fortunate coincidence that these interesting and important lectures should have been delivered at the time when the attempt was being made in Parliament still further to hinder the progress of medical research. Dr. WILLCOX, in the dual rôle of clinician and investigator, points out how our knowledge of the pathology of toxæmic jaundice, gained almost entirely as the result of experiments on dogs, has been of the utmost value to the nation during the war by enabling the causes of the toxic jaundice in aeroplane and munition workers to be recognised early and by directing the preventive measures which proved so successful. His arguments would convince all but the prejudiced and the ignorant, and show that the knowledge gained in this manner is not only of use in medicine proper, but in the prevention of disablement and death from industrial processes which involve the use of dangerous or deleterious substances.

Jaundice is not a disease but a symptom. The diseases in which it occurs are legion, but they may usefully be classified into two groups as stated above: (1) those in which the symptom is due to an obstruction in the bile passages, and (2) those in which it occurs as a result of the intoxication of liver tissue by poisons circulating in the blood. The important pathological distinction between these two groups is reflected in their clinical manifestations. Thus in the first the blood corpuscles are found abnormally large and resistant to hæmolysis, while in the second group they are small and of increased fragility. The prominent symptoms of obstructive jaundice, pruritus, bradycardia, deep colouration of the skin and urine, and pale stools are either absent or occur in much less marked degree in the toxæmic variety. Dr. WILLCOX has brought into the light much interesting work which has been done recently on these hæmo-hepatogenous or toxæmic jaundices. He points out that in this group the obstruction caused by inflammatory catarrh of the smaller intra-hepatic ducts is not usually complete, and that it is to this fact that the absence of obstructive symptoms is due. In these circumstances it is urgently important to be able to make by simple clinical methods a quantitative estimation of the presence of bile pigments and bile salts in the blood and urine. He quotes the work of BLANKENHORN,[1] who has shown that bile pigments may be present in the blood without causing jaundice, and has devised a colorimetric method for the quantitative estimation of cholæmia. The estimation of bile salts in the blood is fraught with many difficulties, and owing to the low percentage present in the blood they are frequently absent from the urine. There is here a fine field of research for the physiologists, not only in enlarging and improving the methods of BLANKENHORN, but also in determining the relation of the auto-intoxication of icterus gravis with a failure in the metabolic function of the liver. Undoubtedly these toxins are products of protein katabolism. To discover their exact chemical composition is the first step which must be taken in the endeavour to prevent their formation. The engorgement of the liver with fat is a concomitant of the occurrence of jaundice in the early stages of many forms of the toxic variety. Dr. WILLCOX considers that it may be to some extent a contributory factor. During the war a considerable amount of work has been done on the results of poisoning by tetrachlorethane (formerly used in the manufacture of aeroplanes), trinitrotoluene, dinitrobenzene, and other explosives. Major A. G. R. FOULERTON has shown that in these cases the liver becomes engorged with fat of a low iodine value. We know that in health the liver stores up available organic fat as unsaturated fatty acids. It remains to be shown what process is at fault by which the acids become saturated in these cases of toxæmic jaundice.

In his third lecture Dr. WILLCOX devotes special attention to epidemic catarrhal jaundice, which he is convinced is an entirely different disease from the condition now known as spirochætosis icterohæmorrhagica, itself a condition brought into prominence during the early part of the war, after its differentiation in November, 1914, by the two Japanese observers, INADA and IDO. Epidemic catarrhal jaundice was extensively observed and investigated in the Dardanelles and in Mesopotamia, and Dr. WILLCOX believes that this condition is probably due to an intestinal infection causing duodenitis and a catarrh of the bile-ducts, with in some cases an ascending cholangitis, though in others the area round the ampulla may be mainly affected. In either case the resulting jaundice is of the obstructive type.

[1] Transactions of Associated American Physicians, 1917.

Dr. WILLCOX gives as his reasons for regarding this disease as entirely distinct from spirochætosis ictero-hæmorrhagica the low mortality, the premonitory period of several days before the onset of pyrexia, the absence of herpes and hæmorrhagic symptoms, the absence of the indications of severe toxæmia, the common concurrence of splenic enlargement, and the fact that in none of the cases occurring in the Dardanelles and Mesopotamia were spirochætes obtained. In both places there was a close association between epidemic catarrhal jaundice and the incidence of "dysentery"—that is, affections associated with entero-colitis—and Dr. WILLCOX is of opinion that there must be an ætiological association between the two conditions, such as food or water infection, and that the entero-colitis induced by the dysenteric affection prepares the way for the infective agent of epidemic catarrhal jaundice. Although the course of this disease usually proved to be mild, yet it appears that acute toxic symptoms may develop exactly as in icterus gravis, and almost invariably these cases proceed to a fatal issue within two or three days. The grave symptoms may occur as early as two days after the appearance of the jaundice, while in one case their onset was delayed as long as 29 days. An epidemic last autumn among the troops in Northern Prussia, associated with slight but definite jaundice, proved to be influenza complicated with malaria and yielded to treatment based on this assumption.

Dr. WILLCOX offers some interesting suggestions in the treatment of the various forms of jaundice. He advises that the diet should be free from fats, and that protein constituents should be reduced owing to the tendency to acid intoxication, especially in toxæmic cases. He advises against the administration of alcohol, and prefers saline aperients where they are necessary. It is of interest to note that he is emphatic in condemning the use of small repeated doses of calomel owing to the risk of the development of mercurial stomatitis. He recommends the administration of alkalies, especially bicarbonate of soda, in large doses, and suggests that in toxæmic cases strong solutions of bicarbonate of soda should be given by the rectum frequently. We commend this interesting series of lectures to our readers as a thoughtful, original, and practical review of the present state of our knowledge in regard to the conditions causing toxic and toxæmic jaundice and their treatment.

LONDON ASSOCIATION OF THE MEDICAL WOMEN'S FEDERATION.—Instead of the usual monthly meeting of the Federation a dinner was given at Gatti's Restaurant on May 22nd, in honour of Miss Frances Ivens and her medical colleagues who had received the Croix de Guerre in recognition of their services at the Abbaye du Royaumont Hospital in France. About 140 members and guests were present. Miss Ivens narrated the experiences of the Scottish Women's Hospital Unit at the Abbaye du Royaumont and at Villers Cotteret. Work was begun early in the war, she said, with six patients, but this number soon increased to 300. For some time this was the nearest hospital to the fighting line, and when the Germans at last broke through speedy evacuation was necessary, amputation and other serious cases being moved the day after the operations. Speaking on behalf of her colleagues, she said that they had all tried to make the French soldiers feel that the English and Scottish women were their friends.

Annotations.

"Ne quid nimis."

AMERICAN POST-GRADUATES IN LONDON.

THE Emergency Post-Graduate Course instituted by the Fellowship of Medicine in the home of the Royal Society of Medicine has already resulted in one important and welcome development. A meeting of over 100 American medical officers attending the course was held last week to form an association in appreciation of the educational facilities organised by the Fellowship of Medicine. It was agreed that combined efforts should be made by the members of the medical section of the United States Army Student Detachment to familiarise their fellow-countrymen with the very exceptional clinical facilities offered by the London medical schools and hospitals. An American Medical Post-Graduate Society in London was founded to promote the scientific and social welfare of the United States medical men visiting the British Isles, to foster the cordial relationship now existing between the members of the medical professions of the two countries, and to act as a source of information concerning the excellent opportunities which exist in Great Britain. Mr. Philip Franklin, F.R.C.S., was elected honorary president, and Lieutenant-Colonel S. C. Gurney, U.S.M.C., president. The committee consists of Lieutenant-Colonel J. A. Mattison, Major J. H. Irwin, Major F. W. Anderson, Major M. W. Hanson, Major R. H. Wald, Major L. D. Prince, Major G. S. Martin, with Major C. Harold Palmer (Palace Hotel, Bloomsbury) as secretary. The work of this society may be expected to have international and scientific value, and its further development will be watched with sympathetic interest.

DEATH FROM BARIUM SALTS ADMINISTERED FOR RADIOLOGICAL EXAMINATION.

THE soluble salts of barium are most poisonous; the innocuity of the sulphate, which is used extensively in radiology, is due to its insolubility. In certain cases, owing to mistakes made by pharmacists, other salts have been administered with disastrous results. At a meeting of the Société Médicale des Hôpitaux of Paris on May 2nd M. R. Bensaude and M. Ed. Antoine reported two such cases. In one a healthy woman, aged 27 years, had gastro-intestinal symptoms. Examination with the X rays after a meal containing sulphate of barium showed gastroptosis. Later, for a further examination, she was given the following prescription: Pure sulphate of barium 120 g.; divide into three powders, one to be taken in a glass of water or milk at intervals of four hours. She took one powder in water and soon cried out, "It burns me; I am poisoned." Vomiting of greyish fluid at once began and she went to stool and complained of severe abdominal pain. She died ten minutes after taking the powder. The remaining powders were greenish yellow and had a sulphurous odour. They were found to consist of sulphide of barium. In the second case an emaciated man, aged 37 years, was given for radiological examination a pap containing 80 to 100 g. of opaque salt. Having no carbonate of bismuth the pharmacist supplied carbonate of barium. The stomach appeared distended and slightly prolapsed. The gastric contractions were feeble and the meal did not pass into the duodenum. On leaving the radiologist the patient suffered from malaise and felt that his

abdomen was distended. An hour later he had violent pains with nausea. After another hour he vomited the greater part of the barium meal. Barium poisoning being suspected, he was given 25 to 30 g. of sulphate of sodium and sulphate of magnesium. Barium was found in the urine four hours after ingestion. There was further vomiting and then a remission of symptoms for six hours, so that it was thought that the danger of poisoning had passed. But his general condition became worse, and the vomiting, at first bilious then with streaks of blood, recurred. He died 36 hours after taking the barium. Other cases of barium poisoning have been recorded. In all a soluble salt had been given for radiological examination in place of the sulphate, which is quite harmless. In one case a pharmacist was absent and his daughter ordered over the telephone 150 g. of sulphate, but was supplied with sulphide. Death took place after five hours in spite of administration of sulphate of sodium. The carbonate is insoluble, but it is unstable and the hydrochloric acid of the gastric juice transforms it into the chloride, which is very poisonous.

A MEDICAL MISSION TO POLAND.

IN response to various appeals from Colonel S. G. Tallents, head of the British Economic Mission to Poland, from Mr. Kimens, acting British Commissioner and formerly Red Cross Commissioner at Petrograd, and others, a committee of inquiry recently visited Poland on behalf of the Friends' War Victims Relief Committee. Through the assistance of Dr. Tomasz Janiszewski, the Polish Minister of Health, they were able to investigate the hospitals and delousing stations in Warsaw and Cracow, as well as to study the conditions in several adjoining villages. In their report the committee state that the stories of Poland's sad plight are by no means exaggerated. The chief need is for the material and personnel of sanitary units which they feel would work under the Polish Ministry of Health without any danger of friction. At the same time it is clear from a memorandum issued by Dr. Janiszewski that through its long era of vassaldom Poland has not been able to develop adequate hospital facilities, so that should the present epidemic of typhus become more severe, or should it be complicated by other epidemics, as small-pox or cholera, the most urgent need for foreign assistance would lie in the creation of hospitals rather than in measures of prophylaxis. This does not imply that measures of preventive medicine are unimportant. The infantile death-rate in Cracow has risen from 10·1 in 1909 to 15·8 in 1917, reckoned per thousand of population and not, as is the case in this country, per 1000 live births. In the latter year the mortality from all causes reached the appalling figure of 32·1. Tuberculosis mortality alone was 9·0, the tuberculosis mortality for the same year in Warsaw being 7·8, and in Lodz 11·0. A special report has been prepared by Dr. Walter C. Stephens, of Muncie, Indiana, the medical member of the committee of inquiry above mentioned. He finds that the Polish authorities are well organised but straitened through lack of funds and a great deficiency of medical personnel. At present there is but one doctor for every 10,000 inhabitants, and it is expected shortly that the age for military service will be raised from 42 to 50 years, which will further reduce the medical aid available for civilian needs. There is great lack of transport facilities, and above all a shortage of disinfecting apparatus and materials, of soap, medicines, and general supplies. Dr. Stephens found the sanitary and housing conditions of the villages he visited so wretched that a house-to-house campaign would be necessary to free them from the pests and infections which they at present harbour. There must be many medical men and women now available with the necessary sanitary and epidemiological experience, and in volunteering for the relief of Poland they may be assured of work of surpassing interest and of an important share in retranquillising a focus of danger to a continent. The London office of the Friends' War Victims Relief Committee is at 91, Bishopsgate, London, E.C. 2.

WOMEN AND THE MEDICAL SOCIETY OF LONDON.

AT an adjourned general meeting, to be held next Monday evening at 8 P.M., the following amendment, which was carried at the general meeting held on May 12th, will be submitted as a substantive resolution. The amendment, which was moved by Dr. J. H. Stowers and seconded by Mr. Ernest Clarke, reads as follows:—

> That the time has arrived when the laws of the Medical Society of London should be amended by the deletion of that part of Law 6 which excludes women from the society as visitors when introduced by a Fellow, provided always that the same visitor shall not attend more than three meetings during any one session.

The original resolution submitted by the council of the society ran:—

> That the time has arrived when the laws of the Medical Society of London should be amended by the deletion of Law 6, which excludes women either as Fellows or visitors.

Notice of the motion has been sent to each of the 600 or more Fellows of the society, and those who desire to confirm the continued exclusion of women from full membership of the society will rally to the support of the score of Fellows present at the general meeting who voted in this sense.

THE MORTALITY FROM INTUSSUSCEPTION.

THE case of intussusception in an infant, with recovery after resection, recorded by Mr. E. R. Flint on another page, reminds us that the death-rate from intussusception in children has very greatly improved since the adoption of the modern operative treatment. The mortality from this condition if left to Nature is enormous, for it was very rare indeed for a case to recover, though occasionally it occurred as a result of sloughing. The value of inflation is not easy to estimate exactly, but surely it was only rarely successful, while it was useless for an intussusception situated above the ileo-cæcal valve. Even when the invagination was lower inflation failed to complete reduction. When we turn, however, to the results of operation we reach a much more satisfactory position, but here we have to distinguish carefully between two conditions. Is the intussusception reducible, or not? When the included bowel can be readily returned the operation is short, and, as also it is generally unnecessary to bring the bowel outside the abdomen, the shock is slight and recovery is the rule. The mortality is very small, though it differs if we compare the results obtained by different surgeons. Probably it may be put at under 5 per cent. The case is, however, very different when we consider those cases in which it is found impossible to reduce the intussusception. Here there is an inevitable prolongation of the operation, with a corresponding increase of shock; moreover, most of the cases where reduction is impossible are those in which

the invagination has lasted several days, so that the general condition of the child is extremely bad, and therefore the greater credit is due to those surgeons who have successful results in such severe conditions. Here, again, it is difficult to estimate accurately the average mortality, but it is probable that if we were able to get figures we should find a mortality of over 50 per cent. Still many surgeons consider that matters are improving; parents are learning the need for early operation in these cases, and the children are brought to the doctor or hospital at an earlier stage, so that the surgeon operates when the bowel is less involved and when reduction is comparatively easy. We may, therefore, hope that the irreducible cases will diminish in number, and that the general mortality will become lowered accordingly.

THE DOG AS TEST OBJECT.

THE plea of the physiologist to retain the right of using the dog for experimental purposes in the service of man has been upheld by the House of Commons. For that is the plain meaning of the large majority by which the Home Office amendment was accepted on Friday last, as appears in our Parliamentary Correspondent's report. The Memorandum of the Medical Research Committee, which we also print in substance this week, demonstrates, without reasonable pretext for gainsaying, that the experimental use of dogs has advanced our knowledge and has been of benefit to suffering humanity. This is not to say that such knowledge could have been acquired in no other way. The habit of mind, engendered by the pursuit of medical research, is not dogmatic. A further indisputable, if regrettable, point is that the dog, by virtue of his long domestication, has specially fitted himself as a test object. We feel that the aggregate amount of suffering inflicted by animal experiment as at present practised by physiologists in this country is small, and that it is quite insignificant compared with the relief of suffering obtained by the experiments. But it is the right of experiment, and not the right to inflict pain, for which plea is offered. Pain is an irrelevant factor which time and skill are in process of eliminating altogether from surgical operating and animal experimentation.

DRUGS A LA MODE.

M. Grimbert, director of the central pharmacy serving all the Paris hospitals, has published figures of the drugs used in the hospitals during the last decade, adding some noteworthy observations on the fluctuation in the fashion governing the choice of drugs. Our Paris correspondent, to whom we owe the information, acutely remarks that a drug, though at one time abandoned for others, may return to favour again later at their expense. He recalls Trousseau's aphorism, addressed to a patient for whom he was prescribing, "Take this quickly, while it is still a cure." M. Grimbert finds that the consumption of "classical remedies" has remained practically stationary for the last 20 years; under this heading he includes morphine hydrochloride (20 kg. annually), cocaine hydrochloride (11 kg.), sulphates of sodium and magnesium, bicarbonate of sodium, bismuth subnitrate, antimony, rhubarb, and senna. Other drugs the use of which has not changed materially during the decade under review are opium (40 kg.), laudanum, quinine sulphate, pyramidon, naphthol, benzonaphthol, chloroform, sodium cacodylate, and adrenalin. Antiseptics, with the exception of formol, are rapidly losing vogue in Paris, and this applies also to the iodides and bromides. A more gradual decline is to be noted in the employment of hydrogen peroxide, trional, sulphonal, glycerine, cod-liver oil, and quinine. There is a rapid increase in the use of novarsenobenzol (8500 doses in 1912, 130,000 in 1918), aspirin, formol, urotropine, theobromine, veronal, and iodotannic syrup; and a rise, less rapid but still considerable, in the use of collargol, protargol, sulphuric ether, sodium benzoate, tincture of iodine, and endocrine extracts. Others are uncertain in their popularity, such as glycerophosphate of calcium, methyl salicylate, and calomel. Certain popular drugs have only recently been inscribed on the official list—e.g., novocain in 1908, colloidal silver in 1909, arsenobenzol in 1911, novarsenobenzol in 1912, and galyl in 1915. Other new remedies still on trial in Paris hospitals include certain colloidal metals and organo-therapeutic extracts prepared for intravenous medication.

INDICATIONS FOR OPERATION IN DIABETES.

THE indications for surgical intervention in diabetes mellitus are discussed by Blum,[1] who remarks that this question may be one of the most difficult problems which the practitioner has to confront. Apart from urgent cases in which an operation is imperative, such as strangulated hernia or perforative appendicitis, hesitation may arise as to whether an operation is justifiable or as to the period at which it should be performed. The difficulties are all the greater as diabetes and the surgical affection have a reciprocal influence upon one another and a vicious circle is created. Should the operation be carried out at once to remove the lesion and at the same time the causes which have an unfavourable action on the diabetes? Or, on the other hand, should an attempt be made to render the urine free from sugar, or at least to reduce the glycosuria so as to cause an improvement in the lesion and thus render the conditions more favourable for operation? Much may be said in defence of either step. Numerous instances have occurred of surgical affections in diabetes which have healed spontaneously after disappearance of sugar from the urine, while, on the other hand, it often happens that after successful operation the diabetes takes a mild course and shows an improvement characterised by diminution of glycosuria and disappearance of the acetonuria. The difficulty of deciding in these cases is increased by the fact that a surgical operation exposes the diabetes patient to great danger, which is chiefly connected with the anæsthetic and operative shock. Moreover, the preparation of the patient constitutes a psychical trauma which may act very unfavourably on the disease. As regards the anæsthetic, ether is to be preferred to chloroform, though cases of diabetic coma following the use of ether are by no means rare. Spinal and local anæsthesia present certain advantages, but these are counterbalanced by the great likelihood of shock ensuing. Blum is of opinion that in mild cases of diabetes characterised by a slight degree of glycosuria and the absence of acetone bodies abstention is indicated, and an attempt should be made to cure the glycosuria. On the other hand, in severe cases characterised

[1] Blum, L.: Paris Méd., 1919, i., 341-43.

by a high amount of glycosuria and the presence of acidosis operation should be performed as quickly as possible. The same applies to diabetes complicated by nephritis.

THE WORK OF THE CANADIAN ARMY MEDICAL SERVICE.

IN a report on the work of the Canadian Medical Services issued from the Department of Militia and Defence at Ottawa, under date Feb. 20th, 1919, a statistical summary is given of the Canadian hospital organisation and of the volume of work done by the Canadian Expeditionary Force. The 65 hospital units in Canada and the 59 units overseas had a total bed capacity of 43,531, with just short of 700,000 admissions to hospital up to December, 1918. 20,891 deaths occurred in these hospitals, the ratio of deaths to admissions being 2·9 per cent. A striking comparison is made between the number of deaths from wounds and those from disease in the "present war" and other recent campaigns. The figures are as follows:—

War.	Force.	Died of Disease	Killed or died of wounds.	Ratio.	
				Disease.	Wounded.
South African ...	British.	14,653	7,792	65%	35%
Russo-Jap	Russians.	20,890	31.458	40%	60%
	Japanese.	27,000	59.000	31%	69%
Present	C.E.F.	2,815	51,853	5·1%	94·9%

These figures are rightly claimed to speak louder than words in regard to the resources of modern scientific medicine, properly applied under military authority by a well-organised and efficient medical service.

FRIENDS FOR SICK CHILDREN.

BETWEEN the Christian charity of the first century and the charity meted out in the twentieth by the fortunate rich to the "deserving poor" there is a great gulf fixed. So obvious is this that in 1881 the revisers of the New Testament considered it necessary to substitute the inexact rendering "love" for the word still found appropriate in 1611 as a translation of ἀγάπη. The Invalid Children's Aid Association are striving with some success to build a bridge across this chasm. Lady Forbes Robertson, speaking at their annual meeting on May 13th, mentioned the scheme by which individuals may give personal as well as financial help to some particular sick child until he or she is restored to health. Verily it is more blessed to give of one's time and personality than to receive a letter of acknowledgment from the treasurer of someone else's fund. Yet at this same annual meeting Dr. S. H. Nathan had need to appeal for more helpers. The work it seems is increasing and, indeed, there is no end to the possibilities of usefulness which will present themselves to an association whose "primary aim" is "to find a friend for every child referred to it ..... doing for it, and getting done everything that experience, commonsense, and kindness may suggest." Medical men, who must compress into a few minutes all the personal care which they can give to each sick child, know well with what relief they have passed on to the Invalid Children's Aid Association poor children in need of treatment beyond their parents' means. To such we appeal with confidence to give what help they can to a valuable organisation while bringing its claims unremittingly before their friends and patients.

A NEW HOSPITAL FOR TROPICAL DISEASES.

A HOSPITAL devoted solely to the treatment of patients suffering from tropical diseases will be opened shortly by the Seamen's Hospital Society in the Endsleigh Palace Hotel near Euston-square. The building has been used during the last four years as a hospital for wounded officers and was recently acquired through the aid of the British Red Cross. It is understood that the clinical material will be available for post-graduate instruction in connexion with the London School of Tropical Medicine. The new hospital will be within easy reach of University College Medical School, Middlesex Hospital, the School of Medicine for Women, Charing Cross Hospital, and Bedford College, and should prove a useful accession to the claims of Bloomsbury to become the future home of the University of London.

LYSOROPHUS.

AT the Royal Society recently it was announced that Professor W. J. Sollas would read on May 22nd a paper on the Structure of Lysorophus as Exposed by Serial Sections. Many of our readers may have been puzzled by the word "Lysorophus" and have wondered to what section of science it belonged. We admit that we ourselves were in that plight. All the big dictionaries, those of Cassell and Webster, the Standard and Century dictionaries, and even Murray's large dictionary, failed to reveal the meaning of the word. Professor Sollas supplies the following interesting information:—

"'Lysorophus' is the name given to a primitive amphibian, an ancestor to the Urodeles, which lived in late carboniferous times. We owe it to Cope who, in 1876 or thereabouts, founded the genus on some isolated vertebræ. After his time many specimens were discovered of the entire skeleton. Cope does not give the etymology of the word nor do any subsequent writers. I assume that 'lyso' comes from λυω, and means 'loose.' 'Rophus' is not so easy. Is the o long or short? If short we have ῥοφος, a swallowing down, or that which is swallowed; if long, the only word which approaches 'rophus' is ῥωπος, any small wares, frippery, and the word should be 'lysoropus' (perhaps) with the intended meaning of 'loose bits.' I will ask my classical friends. I never coin words myself without submitting them to an expert before publication, and I rather resent Cope's remissness in not informing us of the derivation of his horrible word."

Edward Drinker Cope, to whom reference is made, was an American biologist (1840–1897).

Colonel William Tindall Lister, C.M.G., M.B. Camb., F.R.C.S. Eng., has been appointed surgeon oculist to His Majesty's Household.

THE Oliver-Sharpey lectures of the Royal College of Physicians of London will be delivered by Professor E. H. Starling on June 3rd and 5th, taking as his subject, The Feeding of Nations—a Study in Applied Physiology. Professor G. Elliot-Smith will give the Croonian lectures on June 12th, 17th, 19th, and 24th, dealing with the Significance of the Cerebral Cortex. The time in each case is 5 P.M.

AS part of the scheme of reorganisation of the Ministry of Pensions ten neurological hospitals in various parts of the country will be opened for the care and treatment of pensioners suffering from war neuroses. Each medical staff will consist of one senior and two or more junior medical officers. The headquarters of the Medical Department of the Ministry are at Cromwell House, Westminster, S.W. 1, where applications may be sent.

THE DOGS' PROTECTION BILL:

MEMORANDUM BY THE MEDICAL RESEARCH COMMITTEE.

THE Medical Research Committee have addressed to the Chairman of the National Health Insurance Committee an important Memorandum upon the Dogs' Protection Bill. The Committee, speaking with first-hand and intimate knowledge of the mass of suffering among men, women, children, and animals, protest against the inhumanity of hindering those who are working for the diminution of this volume of human and animal pain.

An Insuperable Barrier to Progress.

In the first three sections of the Memorandum the Committee allude to their responsibility for the application of the Medical Research Fund so as most effectively to assist the increase of medical knowledge, by which alone health can be maintained and disease and suffering diminished in human beings and no less in animals. They at once state that the proposals of the Dogs' Protection Bill would "place an insuperable and permanent barrier across some of the chief paths of progress in this work." They do not discuss the general moral question of using animals or taking animal life for experiment or for other human uses or pleasures, but go straight to the indisputable fact that the present science and art of the physician and surgeon have been founded in a large part upon the experimental use of dogs. The Committee point out that by the use of dogs the chief foundations of our knowledge of the processes of digestion, circulation of lymph, work of the heart and circulation of the blood have been laid, and they add that essential parts of our knowledge of the physiology of feeding are based on trials made in the feeding of dogs. Much surgical work on the brain, spinal cord, intestine, and chest has been made possible by experiments on dogs, they add, and methods of life-saving, such as the transfusion of blood and the resuscitation of the drowned, have been worked out chiefly by trials with dogs, from whom also an experimental knowledge of anæsthesia and the activities of many drugs has been gained.

The Bill and the Abandonment of Investigations.

The fourth section states the well-known general reasons which render dogs invaluable for certain experimental work—namely, their long domestication, their size and structure of body, which cause the study of diet and of excreta to be applicable alike to dog, man, and child. For the better and more rapid diminution of suffering and disease it is plain that the selection of the animal most fitted for the special purpose in view should be left to the discretion and skilled knowledge of the worker in medical science. The Memorandum continues:—

The Committee think it their duty to explain the nature of the experiments upon dogs which, as, it happens, are now being, or have recently been, supported on their recommendation by grants from the Medical Research Fund. The work now to be mentioned would necessarily be abandoned if the proposals of the Dogs' Protection Bill should be adopted by Parliament, and it would pass to workers in other countries.

Rickets.

(*a*) Rickets is a disorder of growth in infants leading to deformation of the bones (seen, for instance, in "bandy legs") and to other grave secondary results. It is very common in our large cities, and it is known indeed on the continent as the "English disease." It is also found among confined animals at the Zoological Gardens, for instance, and sometimes among foxhound puppies. Its causation has never been satisfactorily determined, but has been hitherto attributed uncertainly to errors of diet or to improper environment.

During the past three years a large number of experiments upon young dogs have been made with the support of the Committee. The dogs, though receiving abundant food, have been deprived of one or other particular constituent of diet.[1] It has been discovered by this work for the first time that, in the absence of a certain type of constituent hardly appreciable in amount, and with food otherwise abundant, typical "rickets" may be produced in a puppy, corresponding exactly with that found in thousands of our infants. The disorder, when pronounced, can, moreover, be cured completely by the restoration of the missing constituent of the diet, and a discovery of this kind must be of the utmost value in preventing rickets among human infants.

The disorder itself in the puppy, as in the child, is quite painless. Each feeding experiment has been done in a place licensed and inspected by the Home Office under Home Office licence, and with the additional Certificate A + E, allowing anæsthetics to be dispensed with. Each has appeared in the annual Home Office returns under that heading, and these experiments have sometimes been quoted accordingly with technical but misleading accuracy as experiments, or even as "vivisections," done without anæsthetics.

The supporters of the Dogs' Protection Bill would forbid any further progress in this work.

Disorders of the Teeth.

(*b*) A wholly unexpected outcome of the experiments just described has been to show that the absence of a particular and minute factor from the diet may prevent the formation of the hard enamel covering of the teeth as these are being developed, and that deficiency of this factor at the time of tooth formation (as during weaning) causes the enamel to be thin and imperfect. There can be no doubt that this is a piece of knowledge fundamental in its importance for the prevention of that undue subsequent decay of the teeth which is one of the gravest and commonest physical defects among people of the United Kingdom and one of the most fertile causes of secondary illness.[2] These studies are quite new and are being actively followed up, but they must be abandoned if the Dogs' Protection Bill becomes enacted; it is uncertain whether by the use of other animals further progress can be made even though by the help of the dog the key to the problem seems to have been obtained.

The Effects of Alcohol.

(*c*) For the assistance of the Liquor Control Board the Committee have supported some experiments upon dogs in which the intoxicating actions of alcohol have been studied, as well as the rate of disappearance from the blood of alcohol taken into the system under different conditions, as when different dilutions are used, or different forms of beverage, or various foods taken, and so on. These experiments have not been painful to the dogs used. In most cases small samples of blood have been taken for examination at different times by a tiny cut made at the edge of the ear. All have been returned as experiments upon dogs done without anæsthetics. The results obtained have been regarded by the Liquor Control Board as useful to them in their work, and they have incidentally given much new and valuable knowledge to guide the medicinal uses of alcohol in man.

The Study of Diseases of the Heart and Circulation.

(*d*) Dr. Thomas Lewis, in the whole-time service of the Committee, has given in a letter published in the *Times* of April 7th, 1919, the reasons for saying that our knowledge of the heart and blood circulation in man has been grounded in the results of experiments upon the dog. These results have been and are now being applied on behalf of the Committee by Dr. Lewis for the assistance of the Army Medical Service and of the Ministry of Pensions, and no fresh experiments upon dogs have recently been made. The chief progress in this part of medicine has by universal admission been made in this country, and probably the greater part of the necessary experimental work with dogs has been finally done. But new experiments must be expected to be necessary from time to time for the solution of accessory problems, and the Committee would view with dismay any legislation blocking further advances in this subject, in which such lasting benefits to mankind have been brought already by experiments upon dogs.

It should be added here that much of the work which was done to aid the saving of life among the seriously wounded during the war, by the introduction of improved methods of blood transfusion and of other modes of treatment in the dangerous states of wound shock, was made easy or possible only by experiments upon dogs.

Tetany in Children.

(*e*) The experiments so far named have all been painless or have at the most only involved a painless death. The Committee would draw attention, however, to another class of experiment of which some examples have been recently performed, with their support, upon dogs. Of all rickety children in our great cities many (in Glasgow about one-third) suffer from a condition of localised muscular cramps known as tetany. These fixations of the muscles are generally painless, and tetany is not to be confused with the painful cramps of tetanus (lockjaw); but the state of tetany is disfiguring, and to a human subject distressing. By a surgical operation made painless by anæsthetics, a certain small gland (the parathyroid) can be removed from the neck of a dog. The healing of the small skin wound after the operation is obviously painless enough to make no change in the comfort or usual spirits of the dog. It has been discovered that the absence of this gland may produce later a condition of the muscles apparently identical with that in tetany. Further experiments in dogs and other animals gave the information that this gland controls the health of the muscles, not by nervous influences directly, but through control, by way of the blood, of their chemical changes. Knowledge of this kind plainly could not be gained except by such experiments, and without new knowledge of this disorder our treatment of innumerable afflicted children must remain as imperfect and ineffective as it has hitherto been. Closely similar experiments upon another gland in the neck (the thyroid) of dogs and other animals long ago gave us for the first time the means which are now successfully used for curing the idiocy and deformities of "cretin" children in whom the thyroid gland is congenitally absent or deficient.

Further progress along this path would be greatly hampered, and might be barred, by the provisions of the Dogs' Protection Bill.

Non-infliction of Pain.

The Committee, in conclusion, state that their ability to speak with knowledge and, in the case of most of their members, with intimate knowledge, of the actual conditions in which experiments are performed in this country, and they assert confidently that in the vast majority of experiments upon dogs "out of the few score altogether used annually for the purpose" no pain at all is inflicted. They say:—

The experiment or the observation is either made wholly under an anæsthetic and death produced without awakening, or the experiment is a feeding experiment as in studies

[1] THE LANCET, March 15th, 1919, p. 407.

[2] THE LANCET, Dec. 7th, 1918, p. 767.

of the kind described above. In the small minority of cases, when for special reasons and under a special certificate recovery after operation is allowed, there is rarely any condition of pain as distinguished from discomfort. The worker in medical science knows too well that pain as such of itself would vitiate the results of an animal experiment by its disturbing influence, even if he had no other reason to use his skill for avoiding it. By the present law he is under bond moreover to destroy the animal painlessly and at once if severe pain that is likely to endure is present, and whether the experiment is complete or not.

The Memorandum concludes with an appendix containing the views upon the Dogs' Protection Bill, already published in THE LANCET, which have been expressed by the Royal College of Physicians of London, the Royal College of Surgeons of England, the Royal Society of Medicine, and the combined sections of pathology and preventive medicine at the Special Clinical Meeting of the British Medical Association. It is signed by Lord Goschen, Mr. C. J. Bond, Professor William Bulloch, Dr. Henry Head, Professor F. G. Hopkins, Sir William Leishman, Professor Noël Paton, and Sir Walter Fletcher, secretary of the Medical Research Committee.

MEDICINE AND THE LAW.

The Possession of Cocaine.

THE hearing of a charge against a man called Toose was concluded recently, having for its end the binding over of the defendant under the Probation of Offenders Act. He had been charged with being an unauthorised person having in his possession cocaine at certain places and times named in the summons. He was also an alien who had failed to notify a change of address, and with regard to this offence he was ordered to pay a fine of £10.

The defendant had been entrusted by Lionel Belcher, one of the persons recently made prominent in connexion with the death of the actress "Billie Carleton," with a quantity of cocaine. Belcher was stated to have given the cocaine to Toose in order that he might destroy it, though why Belcher did not destroy it himself remained a mystery. Toose instead of sending the drug down the nearest drain or otherwise getting rid of it, chose the extraordinary course of leaving it in a parcel at the office of Belcher's solicitor, where it was handed to the police.

It was not very surprising that Mr. Mead, the magistrate at Marlborough-street, was unable to arrive at a definite conclusion with regard to the motives and intentions which actuated Toose, and if the cocaine has now been destroyed, or handed to persons by whom it can be usefully and legitimately made use of, the fact that the defendant has merely been bound over may at all events keep him out of mischief in future. It is to be hoped that no more will be heard of the unfortunate young woman mentioned above and her circle of undesirable friends.

On the same day that Toose's case was concluded a soldier named Draper was the subject of a serious charge of attempting to administer cocaine, and though Mr. Gill, sitting at Tower Bridge police-court, found the evidence as to this was insufficient, he sentenced the defendant to three months' imprisonment with hard labour for being in possession of the drug. How a sapper in the Royal Engineers came to possess a bottle containing 200 gr. of cocaine was not proved. His story was that he bought it "by accident" in German East Africa under a label of boric acid. At any rate, he seems to have become aware of the nature and value of what he had got, and there was some evidence that he was making inquiries with a view to selling it. A woman with whom he had had "several drinks at several public-houses" informed the police that she had seen Draper trying, or pretending, to drop some of the cocaine into her beer, and the charge, which broke down as stated, arose out of this.

It is possible, if not probable, that Draper's story as to how he got the cocaine may be true. Other cases have shown that cocaine during the past few years has been in demand at a high price, and that it has been found in the hands of persons who would hardly have been entrusted with it by traders desiring to make a profit by an illicit trade conducted through agents. No ordinarily prudent trader, however unscrupulous, would entrust his goods to persons who at any moment might endanger his safety by their ignorance and recklessness. It seems at least possible that much of the cocaine which finds its way into police-courts, after having been offered for sale in public houses and similar resorts, has originally been stolen by thieves, who have felt themselves incapable of reaping the full profits of their dishonesty by selling directly to the consumers.

An Inconclusive Inquest.

At a recent inquest at Trowbridge, Wilts, it was proved that the deceased, who was a painter by trade and 53 years of age, after taking part in the family supper of bread and cheese and beer, went to bed apparently in good health and died in the night. Dr. R. M. Wright was called and found nothing inconsistent with this story. The man was lying dead when Dr. Wright first saw him, and had never at any time been his patient. Dr. Wright in these circumstances naturally and rightly declined to give an opinion as to the cause of death, and when pressed by the coroner explained that it was impossible for a medical man, after merely seeing the body, to say why any person had died. He enumerated several causes of death, any one of which might, or might not, have been responsible in the case under consideration, stating that of these the rupture of an aneurysm was the most probable. He explained that without a post-mortem examination it was impossible to state with exactness the cause of death, and that it was merely as a matter of relative probability that he had suggested an aneurysm. Whereon the coroner, sitting without a jury, made a speech in which he said that from the evidence it seemed clear that death was from natural causes, and that of these the most probable was the rupture of an internal aneurysm. He saw no reason why a post-mortem examination should be held. The case was quite a simple one, and he had had hundreds, and his father before him thousands, of similar cases, and it had not been their practice to order post-mortem examinations. He concluded by saying that from the evidence he found that the deceased came by his death from the rupture of an aortic aneurysm. If the coroner's observations in this case have been correctly reported, it is impossible not to differ from him in almost every detail; and whether he actually expressed himself thus or no, such views may be held by himself and others and prove very dangerous to the community. There can have been no evidence that death was due to natural causes, as there was no evidence as to what was the cause of death. There was merely an absence of evidence of any unnatural cause. There was no evidence that the deceased died from an aortic aneurysm, but merely a suggestion from a medical man that such a cause of death, with others, was consistent with the appearance of the body, and with the account given by the relatives. There was no evidence that the deceased ever had an aneurysm.

It is the duty of a coroner to inquire into a case of sudden death of which the cause is unknown; and even though murder or manslaughter may be eliminated at the inquest, it is still the duty of his jury, where there is one, to find the particulars for the time being required to be registered concerning the death. This obviously cannot be done by recording as a fact a suggestion made by medical men as to what may have happened. If the coroner is correct in saying, as he apparently did, that hundreds of cases have been treated by him as he did the case under discussion, the only conclusion to be arrived at is that in hundreds of cases of death in Wiltshire the records of the cause of death are not to be relied upon.

The Notification of Ophthalmia Neonatorum.

At Newcastle-on-Tyne police-court recently Mr. G. R. Fortune was ordered to pay a fine of £50 for failing to notify a case under Article 5 of the Public Health (Ophthalmia Neonatorum) Regulations, 1914. The defendant pleaded guilty and did not appear. It was stated that the child in respect of whom the proceedings were taken was a little girl born prematurely in the early part of the year, the birth being attended by a midwife. The defendant was called in, according to a letter written subsequently by him to the medical officer of health, on account of the child having been prematurely born, and therefore did not regard her as his patient. The midwife, however, had observed a discharge from the eyes of the infant, and called Mr. Fortune's attention to it, upon which he ordered treatment. Later, when the discharge had become worse he advised that she should be taken to the Eye Infirmary. She was there found to be suffering from

ophthalmia neonatorum, from which cause she had since become totally blind. It was also stated on behalf of the defendant that he was not aware of any obligation to notify cases of ophthalmia neonatorum. Dr. A. S. Percival, surgeon to the Newcastle-on-Tyne Eye Infirmary, went into the witness-box and explained to the magistrates the condition of the child's eyes when she was admitted to the infirmary and the nature and curability of the disease, subject to its prompt treatment. The bench, one of the members of which was Dr. F. C. Coley, after some deliberation, inflicted the substantial fine mentioned. The magistrates had been informed by the town clerk, who appeared for the prosecution, as to the steps taken to make known to all medical practitioners in the borough the diseases in respect of which notification must be sent to the medical officer of health. Ignorance of the law does not in any case, however, constitute a defence.

The "Ragging" of a Nurse.

A summons taken out by a probationer nurse in the Bermondsey Infirmary against five of her fellow probationers for ducking her in a bath ended in each of the defendants being fined 40*s.* with 10*s.* costs. The case, however, will no doubt receive further attention from the Bermondsey guardians. According to statements made by witnesses on behalf of the defendants, the complainant had made herself very unpopular with them by reporting them when they did not deserve it for alleged shortcomings in the discharge of their duties. This apparently was advanced in order to account for their action and to mitigate the penalty, which must necessarily be severe in the case of an admitted assault, if it were to be regarded as wholly unprovoked. Mr. Gill, in sentencing the defendants, said that the complainant had been subjected to very great indignity, and that there was "no reason or excuse forthcoming," which suggests that, in his opinion, the ragging was entirely unprovoked and inexcusable. On the other hand, the solicitor for the defence is reported as having stated in court that the guardians after full inquiry had found that patients had not been neglected, which implies that the reports should not have been made. There is a certain discrepancy between the words of the magistrate at the conclusion of the hearing and the finding of the guardians, if, in fact, they found that there was no conduct on the part of the defendants which justified their being reported. The charge made by them against the complainant was a serious one, much more serious than their method of either (1) revenging themselves for injustice done them, or (2) taking steps to deter the complainant from carrying out her duty. The actual ducking, followed by the carrying of the matter into a police-court, gives an impression of young women aping the manners and practices of young men and forgetting that the victim of their exuberance may not adopt a masculine point of view so readily as themselves. "Ragging," moreover, is no longer held to play an important and useful part in forming the manners of our public schools, universities, and military and naval services, while the organised assault of one person by many is always an act of cowardice. We hope that the Bermondsey guardians will take a serious view of the conduct of the "raggers."

CANADA.

(FROM OUR OWN CORRESPONDENT.)

Medical Gatherings.

THE thirty-ninth annual meeting of the Ontario Medical Association is being held this year in Toronto from May 27th to 30th. Sir StClair Thomson delivers the address in medicine on Shakespeare as an Aid in the Art and Science of Medicine. Dr. J. Morris Slemons, Professor of Obstetrics and Gynæcology in Yale University, has taken the Nutrition of the Fœtus as the title of his address in obstetrics.

The annual meeting of the Canadian Medical Association will take place in Quebec city from June 25th to 27th. Dr. J. Halpenny, Winnipeg, is to deliver the address in surgery. As the association has not met in Quebec city for a quarter of a century or more, the gathering is exciting much interest.

Osteopathy.

The bill for legalising the practice of osteopathy in the province of Quebec, which recently came before a special committee of that body, was thrown out and never reached the legislature. The medical profession insisted that osteopaths should qualify in the way obligatory for orthodox practitioners and for all specialists in the various branches of medicine before receiving recognition by the provincial Government.

It was fully understood by the medical profession in the Province of Ontario that the new Medical Act as prepared by Mr. Justice Hodgins, Toronto, after a very careful and searching inquiry into the practice of medicine and medical education in that province, was to have been introduced into the Ontario Legislature some time during the recent session. This has not, however, taken place, and no light is forthcoming as to the fate of the draft. The Government introduced another measure governing the Medical Council of the province, but this was subsequently withdrawn. Thus matters stand for the present, and the osteopaths, chiropractors, and Christian Scientists have full sway without any sanction, legal or otherwise, for their practice.

Free Hospital Movement in Western Canada.

A movement for instituting free hospitals has been gaining weight in Western Canada. In public health matters there has been an insistent demand on the part of the people that the provincial Governments should assume a greater measure of responsibility in such matters. As a result each of the prairie provinces has enacted legislation; Saskatchewan and Alberta have passed Acts for public hospitals to be controlled and financed by the taxpayers. The organisation provided for in the Alberta Act is superior to that in any other part of Canada, and runs closely parallel to that dealing with education. It lays the foundation for a system of hospitals as free and complete as that for public schools.

A Federal Department of Public Health for Canada.

Canada may soon have a separate and distinct department of public health, presided over by a responsible Minister of the Crown, practically all the doctors in the House of Commons having endorsed the measure in the strongest possible terms. It is not clear yet who is the responsible Minister under whom this new department will be placed. The Canadian Medical Association has almost all its life of 55 years favoured and promoted this measure. The name of a certain prominent lawyer sitting in the House, and a member of the Union Government, is mentioned for the position, but the *Dominion Medical Monthly*, in the interests of public health, pertinently asks why should a lawyer be appointed or chosen for this important position, when there is in the House of Commons a past-president of the Canadian Medical Association, a past-professor of public health in the University of Toronto, a past-chairman of the board of health of Ontario, a past-medical officer of health of Toronto, all combined in the person of one man, Dr. Charles Sheard, M.P.?

The Menace of Venereal Disease in Ontario.

When the Venereal Diseases Act was passed a year ago the view was widely circulated that these diseases constituted a great menace to the community. After one year's working of the Act the menace does not assume the expected dimensions. Recent monthly returns of the Ontario Board of Health give the following figures for March, 1919: Syphilis, 97 cases; gonorrhœa, 183 cases; chancroid, 4 cases; and for April, 1919: syphilis, 110 cases; gonorrhœa, 139 cases; chancroid, 3 cases.

The Prescribing of Liquor in Ontario.

According to reports in the local press the doctors of Ontario have been getting rich from prescribing alcohol under the Ontario Temperance Act, which came into effect on Sept. 16th, 1916. A million quarts of liquor, it is suggested, have been prescribed from that date up to Feb. 15th, 1919—i.e., 29 months in all. This is at the rate of about 34,000 quarts in a month, or possibly 3 quarts per week for each of the 3300 physicians in the province. At a charge of a dollar per prescription this does not spell riches.

May 12th.

Dr. Eustace Henry Cluver, temporary Captain, S.A.M.C., late Rhodes scholar at Oxford University, has been appointed to the new chair of Physiology at the South African School of Mines and Technology at Johannesburg.

NEW YORK.

(FROM AN OCCASIONAL CORRESPONDENT.)

Health of the Navy and Marine Corps.

THE latest reports of the Navy and Marine Corps of the United States show that the number of cases of influenza has declined considerably, and that there has also been an appreciable fall in the annual rate per 1000 as in the total admissions for all diseases.

National Investigation of the Drug Habit.

A report has been submitted recently by the special committee appointed to make a national investigation of the drug habit. According to this report it appears that native-born Americans are more greatly given to the drug habit than other white races, and that the drug habit is more widespread in the United States than in any other country. The report emphasises the point that if drug addiction is to be controlled the individual States must pass supplementary legislation; so far only three States have done this, namely New York, Massachusetts, and Tennessee.

Owing to the stir raised with respect to this matter the New York Board of Health has established recently a narcotic relief station in the "down-town" part of New York. The establishment of this station has afforded very favourable opportunities for the collection and collation of data concerning drug addiction. Although experience has shown that the testimony of persons given over to drug habit is generally unreliable, yet their dicta possess a certain amount of value. An interesting and possibly an instructive feature of the drug situation in New York is that an analysis of the statements made by 1506 patients treated showed that only 19 per cent. were women. This fact, however, as the *New York Medical Journal* points out, may be accounted for by the relatively greater timidity of women in applying to the clinic. Few negroes applied for relief. Of the total number of addicts who applied, 44 per cent. were skilled workers, while 17 per cent. of this total were chauffeurs, signalmen, and motormen—a somewhat alarming state of affairs. It is satisfactory that only 21 per cent. of the addicts attributed the contraction of the habit to medicines ordered in order to relieve pain or insomnia. The majority ascribed the habit to curiosity, bad associates, and idleness, 68 per cent. laying the blame on bad associates. As for the drugs employed, it was discovered that 69 per cent. of the addicts used heroin alone; 4 per cent. used cocaine alone, and 17 per cent. used cocaine in connexion with either heroin or morphine.

The treatment carried out at the narcotic clinic consists merely in the reduction of the drug until the physiological minimum has been reached, and when this point has been attained the patients are sent to a hospital for further treatment. Dr. S. Dand Hubbard, of the New York City Department of Health, who is in charge of the Narcotic Relief Station, advises that a special reconstruction hospital be established.

The Health Report of New York.

From the annual report of the health officer for the Port of New York it appears that during the fiscal year 5161 vessels were inspected, 102,296 passengers and 304,065 crew being examined in the course of the year. The number of vessels fumigated was 1195.

A New York Diagnostic Hospital.

There is widespread interest in the opening of the New York Diagnostic Hospital at 125, Seventy Second-street The institution, the fund for the establishing of which was raised by physicians, will be the first of the kind in America. The clinics will be for diagnosis only, and will accommodate about 500 patients daily.

Venereal Disease and Crime.

A statement has been issued recently by Dr. James A. Hamilton, Commissioner of Correction of New York city, with regard to the relation of venereal disease to crime. The Commissioner says that the majority of male prisoners give a history of venereal infection at one time or another, while among female prisoners every case gives a venereal history or shows a positive Wassermann. One of the questions raised was as to whether a prisoner shall be liberated when he shows a 4 plus Wassermann, or whether it is safe to allow such prisoners to mingle in the workshop or to sleep with those uninfected. Dr. Hamilton is of the opinion that it would be obviously unjust to retain the prisoner in jail until the Wassermann became negative. On the other hand, if salvarsan is administered the Wassermann may become negative for a few months and then become positive again. He tenders the suggestion that these individuals be paroled, compelled to take treatment, and to report at stated intervals, bringing proof that they are being treated.

Death of a Well-known War Nurse.

Miss Jane Delano, probably the best known nurse in the United States, who died in France on April 15th, was up to the year 1918 superintendent of nurses at Bellevue Hospital, New York. In response to an appeal from the then Surgeon-General she came into the army to assist in reorganising the Army Nurse Corps. Later she assumed the direction of the Red Cross Nursing Service and proceeded to France in that capacity. In a special communication to the press Brigadier-General Francis Winters, M.C., U.S.A., compares Miss Delano's work to that of Florence Nightingale, and suggests that a fitting memorial of her be erected in the Red Cross Building in Washington.

The Prevention of Typhoid Fever.

A paper on this subject appeared in *Public Health Reports*, March 28th, 1919, by Colonel Walter D. McCaw. He states that typhoid and paratyphoid fevers are increasing in the American Expeditionary Forces, and lays stress on the fact that vaccination only confers partial protection against these diseases and must be reinforced by sanitary measures. Colonel McCaw considers, in order to avoid a serious outbreak of typhoid fever in France, it is essential that the medical officers see that every necessary mode of safeguarding the water and food-supplies is taken, and that these methods are strictly enforced. An editorial in the *Medical Record* upholds these views.

May 20th.

URBAN VITAL STATISTICS.

(Week ended May 24th, 1919.)

English and Welsh Towns.—In the 96 English and Welsh towns, with an aggregate civil population estimated at 16,500,000 persons, the annual rate of mortality, which had been 13·7, 12·6, and 12·0 per 1000 in the three preceding weeks, further declined to 10·8 per 1000. In London, with a population slightly exceeding 4,000,000 persons, the annual rate was 10·3, or 1·0 per 1000 below that recorded in the previous week, while among the remaining towns the rates ranged from 3·9 in Wimbledon and in Oxford, 5·0 in Wallasey, and 5·7 in Ipswich, to 17·1 in South Shields, 17·3 in Aberdare, and 20·0 in Dewsbury. The principal epidemic diseases caused 133 deaths, which corresponded to an annual rate of 0·4 per 1000, and included 49 from measles, 30 each from diphtheria and infantile diarrhœa, 11 from scarlet fever, 10 from whooping-cough, and 3 from enteric fever. Measles caused a death-rate of 3·5 in Middlesbrough. There were 3 cases of small-pox, 1055 of scarlet fever, and 1109 of diphtheria under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital, against 3, 1078, and 1137 respectively at the end of the previous week. The causes of 28 deaths in the 96 towns were uncertified, of which 5 were registered in Birmingham, 4 in Liverpool, and 3 each in Manchester and Darlington.

Scotch Towns.—In the 16 largest Scotch towns, with an aggregate population estimated at nearly 2,500,000 persons, the annual rate of mortality, which had been 12·8, 13·7, and 13·5 in the three preceding weeks, fell to 12·8 per 1000. The 275 deaths in Glasgow corresponded to an annual rate of 12·8 per 1000, and included 16 from whooping-cough, 15 from measles, 3 from diphtheria, 2 from infantile diarrhœa, and 1 from scarlet fever. The 85 deaths in Edinburgh were equal to an annual rate of 13·2 per 1000, and included 6 from whooping-cough and 1 from diphtheria.

Irish Towns.—The 118 deaths in Dublin corresponded to an annual rate of 15·2, or 2·7 per 1000 below that recorded in the previous week, and included 3 from infantile diarrhœa and 1 each from enteric fever and scarlet fever. The 118 deaths in Belfast were equal to a rate of 15·3 per 1000, and included 3 from infantile diarrhœa and 1 from scarlet fever.

2ND EASTERN GENERAL HOSPITAL, BRIGHTON.—The 2nd Eastern General Hospital, at Brighton, with all its auxiliary institutions in the Kemp Town district and at Hove—some of the latter had already closed their doors as hospitals—was closed down on May 21st. Opened on August 12th, 1914, the first convoy of wounded arrived on Sept. 3rd, since which date no fewer than 70,499 men had passed through the hospital and its auxiliaries, of whom 543 had died. Ten members of the staff and 101 of the non-commissioned officers and men served overseas, and out of a total of 298 on the trained nursing staff originally called up, 144 served overseas. In all, 500 nurses passed through the hospital during the four and a half years of war. The mortuary chapel at the main hospital in Dyke-road is to be given to one of the medical institutions in Brighton.

Correspondence.

"Audi alteram partem."

THE ARRANGEMENT OF THE AUTONOMIC NERVOUS SYSTEM.

To the Editor of THE LANCET.

SIR,—Since the appearance of Gaskell's book on the "Involuntary Nervous System" in 1916 there has been a tendency amongst English writers to consider that the main problems of this system were settled by Gaskell. Thus, in the Croonian lectures now appearing in your columns Dr. Langdon Brown says: "It is not depreciating the work of subsequent investigators to say they have chiefly filled in the gaps and completed the details in the great plan" drawn up by Gaskell. This point of view probably arises in large part from the form in which Gaskell puts his account in the "Involuntary Nervous System." This book is the substance of his lectures to students. In it, he first gives a summary of those of his conclusions which he arrived at in 1886, and which have survived. In the rest of the book he gives the facts known at the time of writing, and the conclusions to be drawn from them, but as the treatment is not historical he does not deal with the fundamental differences between the conclusions so drawn and those which he and others held in 1886–1889. Except as regards the origin of the nervous system from an invertebrate type, and views as to the relation of the innervation of the layers of the embryo, the theories are with little modification those I gave in one or other of my summaries more than 15 years ago.[1]

Gaskell's contribution was to bring into one system all "visceral nerves" and to connect all efferent "visceral" fibres with small medullated fibres. Both of these points had been frequently discussed earlier. The most illuminating part of his conclusions was that the sympathetic fibres arose from the thoracic and upper lumbar regions only of the spinal cord. Whilst his conclusions brought a clarity into part of the arrangement of the autonomic system which did not previously exist, a still larger part was left in not less confusion than it was before.

I may briefly summarise the problems of fundamental importance which were so left, and which I have been more or less concerned in elucidating.

It was supposed that the efferent fibres might have on their course one or several nerve cells or none at all. The modern theory is that there is one nerve cell interposed between the central nervous system and the periphery, and one only.

The ganglia of the posterior roots and the various peripheral ganglia were held to consist of both "visceral" efferent and of sensory nerve cells, and there was extreme difference of opinion with regard to some ganglia as to the relative proportion of the two kinds of cells. The theory of admixture of the two kinds of nerve cells is now generally discarded.

French writers advocated Cl. Bernard's theory that there were true reflex actions from peripheral ganglia, and those who contested this view gave no satisfactory explanation of the facts. The explanation was afforded by observations on "axon reflexes." Connected with this was the theory that the ganglia were coördinating centres for impulses coming from the central nervous system. Facts have found against this theory.

There was no general plan of the distribution of the nerve fibres of the white rami to the several ganglia. This has now been made.

Nothing definite was known of the relation between the distribution of the fibres proceeding from a sympathetic ganglion to the skin and the distribution of the afferent fibres of the corresponding spinal nerve. This has been determined.

The ganglia of the sympathetic system were held by some observers to be divided into two sets—the proximal for motor and the distal for inhibitory nerves. It has been shown that this theory has no foundation. The ganglia are connected with all kinds of nerve fibres which run to a given area.

The theory of "crossed innervation" of the circular and longitudinal coats of the gut was widely accepted, and in the form then accepted it has been shown to be erroneous.

The old question of direct vaso-dilator fibres—i.e., of "visceral" fibres in the spinal nerves—gave no sign of being settled. Some observers held that they ran in anterior roots, others that they ran in posterior roots, and some denied their existence. It is now held that they are afferent fibres.

The conception of the "visceral" system (autonomic system) as a single system has been essentially modified. It is now held that the bulbar part of the "cranial outflow" and the "sacral outflow" form one system for the gut and its appendages (my oro-anal system), and that it is essentially different in phylogenetic development from the sympathetic.

I may add that my experiments on the autonomic nervous system started from observations on the action of pituri sent me by Professor Liversidge. They developed step by step in logical sequence from the result of the observations made by Dickinson and myself on the action of this poison.

I am, Sir, yours faithfully,

Cambridge, May 26th, 1919. J. N. LANGLEY.

[1] Schafer's Text-book of Physiol., vol. ii., p. 618, 1900; Brain, vol. xxvi., p. 1903; Ergeb. der Physiol., Bd. ii, p. 819, 1903.

"OURSELVES ONLY."

To the Editor of THE LANCET.

SIR,—Mr. E. H. Worth's letter in THE LANCET May 24th should appeal to all non-panel men who value a defensive organisation, and it is to be hoped that any not already members of the National Medical Union will join that body without delay. Intending members may be reminded that the subscription for the latter half of the present year is only half a guinea, and members joining before July 5th will be eligible for attendance at the annual general meeting on that date, when the objects and work of the Union will be explained. The meeting will be followed by a dinner which (as in previous years) will, I understand, not be limited to members, and at which ladies will be welcomed. Tickets (7*s.* 6*d.*) can be obtained at the offices of the Union, 346, Strand, W.C. 2, to which address, also, applications for membership should be sent.

There is an impression in some quarters that the work of the National Medical Union is limited to opposing the National Insurance Acts, but this is quite erroneous. A large field of activity lies ahead, for the traditional freedom and dignity of our profession will shortly be assailed in new directions. The Union (which it may be mentioned is not a trade-union), while not disapproving of a public medical service under certain conditions and limitations, will take care not to advise acceptance by the profession of any unsatisfactory scheme that may be launched. Its function is to prevent further encroachments on our independence, and in this work it deserves whole-hearted support.

I am, Sir, yours faithfully,

EDWIN SMITH,
Late Hon. Treasurer, National Medical Union.

London, S.W., May 25th, 1919.

THE ORIGIN OF LIFE: THE WORK OF THE LATE CHARLTON BASTIAN.

To the Editor of THE LANCET.

SIR,—Now that the war is over and the time of bacteriologists is not so much taken up with work connected with the saving of human life, may I suggest that they devote a little attention to a question of far-reaching importance—namely, the Origin of Life? This question has never yet been settled owing mainly to the strenuous opposition of bacteriologists to the views of my father, the late Dr. H. Charlton Bastian, F.R.S. He it was who for 50 years, in spite of every opposition from such men as Pasteur, Tyndall, and Huxley, claimed, as the result of most careful experiment, to have proved that living matter is capable of coming into being in suitable media and under favourable conditions at the present day from non-living matter.

The truth of his doctrines and the reality of his alleged facts as set down in several publications, notably "The Origin of Life,"[1] have never been disproved. They have for the most part only been met by mere bald denials, unsupported by any fresh or independent evidence, and seemingly based on *a priori* views as to what seemed to a bacteriologist possible or impossible.

Surely this is unscientific. If the alleged facts are not true, or if there has been some faulty technique admitting of

[1] Watts and Co., second edition, 1913.

some error, then would it not be easy for a skilled and unprejudiced bacteriologist to point out such error by means of careful experiments? This I challenge any bacteriologist to do if he will approach the matter with an open mind, all his preconceptions to the contrary notwithstanding.

I am, Sir, yours faithfully,

W. BASTIAN,
Surgeon-Commander, Royal Navy.

Chesham Bois, Bucks, May 18th, 1919.

To the Editor of THE LANCET.

SIR,—Surgeon-Commander W. Bastian, R.N., informs me that he is very desirous of having careful investigation made by some competent biologist on the subject of the work done by his father, Dr. Charlton Bastian, F.R.S., regarding the appearance of lower forms of life in certain nutritive materials from which entry of germs is carefully excluded. I am by no means convinced of the possibility of this, but should like to mention that at the beginning of the war the late Mr. Harold Row, of the Biological Laboratory of University College, London, and myself had intended to make some attempts in the proposed direction. Unfortunately, much war work interfered with this intention of ours, and quite recently Mr. Row has died of influenza.

May I add that we all consider Surgeon-Commander Bastian's action to be prompted by the highest filial motives, and that many agree with him that his father's work has not yet perhaps received as much experimental study as his position in the medical and scientific world demanded. Perhaps a mention of the matter in your columns might persuade someone with sufficient knowledge and time for the work to undertake it, even in spite of the obvious arguments which are still to be urged against the likelihood of final success. I am, Sir, yours faithfully,

May 20th, 1919. RONALD ROSS.

THE LIMITATIONS OF VOLUNTARY HOSPITALS.

To the Editor of THE LANCET.

SIR,—The air is full of reforms—many good, some indifferent, and not a few bad—and not least among these reforms is the reorganisation of the medical service in this country. That such a reorganisation is desirable is recognised by the medical profession not less than by the Government, though it is to be feared that the latter do not view the matter entirely from the same standpoint as the former. One of the chief reasons for this movement is the great advance in medical science during recent years and the highly complex and specialised treatment resulting; often, to quote the words of another, requiring "team work in specially equipped institutions." And it seems only fair that this should be available to all, rich and poor alike.

Now, how do our voluntarily supported hospitals meet this situation? To begin with, most of them are in straitened financial circumstances; nor is this condition likely to improve having regard to the increased taxation and other burdens imposed on those who hitherto have supported them. They minister to the needs of paupers, those of moderate means with an income above a certain limit being looked upon, and rightly so under present conditions, with disfavour. The members of this class, and it is a very large one, are indeed in an unenviable position. Suppose the necessity for a severe operation should arise. They cannot afford an expensive nursing home and the fee which a surgeon would be compelled to charge outside of an institution, though they are willing and able to pay moderate fees to both hospital and operator. What happens? They are either smuggled into the hospital and maintained at its expense in a public ward which, though perfectly good, lacks those refinements to which they should be entitled, or they pass to the nursing home, thereby incurring expenses which cripple them for many a long day. Have it either way injustice is done. Again, increasing numbers of the labouring classes are now in receipt of wages which can hardly be said to qualify them as paupers. Are they to be admitted absolutely free to institutions supported by voluntary contributions? I do not think that they themselves desire it. And on the face of it it is obviously wrong.

What are the remedies? One is free hospital treatment for all, under Government control with paid staffs. I commend this to those who have had experience of departmental bureaucracies during the war. Another, and to my mind a better, is the admission to our hospitals of paying patients with fees graduated according to their means. Under this scheme pauper cases would be treated gratuitously; for those whose income exceeded a certain fixed limit a sliding scale would be in operation according to the accommodation supplied—ranging, say, from 30*s.* to £2 a week in an open ward up through cubicles at 3 or 4 guineas to the more expensive private rooms. The medical staff would be allowed to charge fees to the paying patients, also on a graduated scale laid down by the hospital authorities. In this way hospital abuse would be abolished; managing boards would be able to prove to the Government that their institutions were largely self-supporting and on a much firmer financial basis than when wholly dependent on charity, voluntary subscriptions should be the more readily obtainable, since the benefactors would know that their gifts were entirely devoted to the absolute poor; and all, rich and poor alike, would have institutional treatment at their command.

I have lately taken the trouble to write to certain representative American hospitals on this subject and have received some most instructive replies. Nearly all take paying patients and nearly all derive a very considerable part of their income from so doing. Some have only recently adopted the scheme, but they all agree that it is one which is growing in popularity. To take a few examples. The Jefferson Hospital, Philadelphia, in 1918 received 3052 fully paying patients, 1610 partially paying, and 4662 free. Its income was made up in round figures thus—from working of hospital (chiefly fees from patients) 240,000 dollars, from bequests and investments 28,000 dollars, and by grant from State of Pennsylvania 99,000 dollars. The Lakeside Hospital, Cleveland, in another year had 1263 fully paying patients, 2844 partially paying, and 1658 free. Its income derived from operating the hospital was 198,000 dollars, as against 7000 dollars from voluntary contributions and 100,000 dollars from investments and endowments. The Johns Hopkins Hospital at Baltimore in 1917 drew no less than 576,000 dollars from hospital receipts, a very large proportion of its total expenses, which were 714,000 dollars. Similar figures are given by other institutions.

It is good to see ourselves as others see us, and in conclusion I should like to quote from the letter which I received from the superintendent of the Lakeside Hospital, Cleveland. He says: "From the standpoint of an American, English hospitals appear hampered by your traditions, which have kept down the development of hospital work and the development of institutions, owing to the fact that your hospitals are for paupers only. It seems to us that this has resulted in the maintenance of lower levels of scientific and general efficiency in the institutions. At any rate, we like our fundamental principle much better—i.e., that the very best and the most effective hospital service shall be available to every person when in need of it, and that the payment therefor be made according to means."

I am, Sir, yours faithfully,

Reading, May 18th, 1919. W. BERNARD SECRETAN.

The War and After.

THE CASUALTY LIST.

THE names of the following medical officers appear among the casualties announced since our last issue:—

Previously Reported Missing, now Reported Killed.

Major F. M. Taylor, R.A.M.C.

Died.

Capt. J. H. Magoveny, R.A.M.C., qualified at Glasgow in 1913, and held appointments at the Victoria Infirmary in that city and at the Royal Infirmary, Bradford. For some time he was in command of a convalescent depôt at Salonica.

Capt. R. McK. Morison, R.A.M.C., qualified at Glasgow in 1908, and held appointments at the Greenock Infirmary and at Wye House Asylum, Buxton.

Capt. R. W. S. Murray, R.A.M.C., qualified at Aberdeen in 1912, and held an appointment at the General Hospital, Tunbridge Wells, prior to joining up.

Lieut. J. K. Sharma, I.M.S.

Obituary.

FRANCIS JAFFREY, F.R.C.S. ENG.,

CONSULTING SURGEON TO ST. GEORGE'S HOSPITAL.

Francis Jaffrey, who died at Fowey on May 20th, was forced by illness to retire from practice in London in 1914, though his health sufficiently recovered later to enable him to undertake the duties of honorary secretary to the Fowey Cottage Hospital and surgeon to the Fowey Auxiliary Hospital for wounded officers.

The son of the late Archibald Jaffrey, of Adelaide, South Australia, he was born on Feb. 6th, 1861, and received his education at St. Peter's College, Adelaide. Dr. C. E. Todd, who died last year, and Sir Edward C. Stirling, whose death occurred in March last, were also educated at St. Peter's, and the fact that these two had entered at St. George's Hospital influenced Jaffrey in his choice of a medical school when he took to medicine; this he did rather later in life than is usual, having started his career in the City. Entering St. George's Hospital in 1885, he took the English Conjoint Board qualification in 1890, held the usual junior appointments, and in 1892 became resident medical officer to the Atkinson Morley Convalescent Hospital at Wimbledon. Five years later he returned to St. George's Hospital on appointment as surgical registrar and demonstrator of anatomy, in which year he proceeded to the F.R.C.S. Eng. A vacancy almost immediately occurred upon the staff, and he was appointed assistant surgeon in 1898 on the retirement of Mr. Pickering Pick, becoming full surgeon in 1905. He was also attached to the Belgrave Hospital for Children, and for some years was consulting surgeon to the Cripples' Home in Kensington. For a period Jaffrey acted as Dean of the Medical School of St. George's Hospital conjointly with Dr. Arthur Latham.

It would not be right to term Jaffrey a great surgeon, but he was a most efficient hospital officer, regular and punctual in his attendance, careful in his work, and his cases did remarkably well. As a student Jaffrey was a prominent athlete. He was captain of the hospital Rugby football XV. in 1888, and he also helped St. George's Hospital to secure the Inter-hospital Lawn-tennis Cup on at least two occasions.

CHARLES EDGAR LEA, M.D. MANCH., M.R.C.P. LOND.,

ASSISTANT MEDICAL OFFICER TO THE MANCHESTER ROYAL INFIRMARY.

Edgar Lea's little book on the "Heart: Past and Present"[1] comes into our hands by a pathetic coincidence just as its author has been laid to rest; and some mention of it may fittingly precede any formal record of his life, of which it forms an illustration. Based upon a sound knowledge of the elements of cardiology, both recent and in the writings of the fathers, Lea assumes a similar grasp on the part of the reader and carries him for a mental flight in which past and present are seen in proper perspective, and the future is opening out with attractive promise. The heart worker, he says, must in the nature of things be a lonely individual, for cardiology at present stands alone in regard to its symptomatology, the methods for its investigation, and the manner of treatment. For sheer spectacular display, nothing equals the diagnostic weapons which the cardiologist has sprung upon the profession, but, Lea mournfully adds, not one of these methods has yet proved of everyday practical use. The practitioner, familiar with modern cardiac work, will treat his patient quite skilfully without any one of them. But the position must not be allowed to remain so, and Lea advocates the systematic organisation of research work in connexion with heart clinics in which finally scientific and clinical medicine will combine in ameliorating the hard lot of the whole group of heart patients. On this hopeful note the book characteristically ends.

The death of Dr. Lea took place on May 8th. He was born at Sandbach in 1882, and educated at King's College, London, and the University of Manchester, where he graduated in medicine in 1904 and five years later proceeded to the doctorate, taking also the Membership of the Royal College of Physicians of London. Previous to this he had held the usual resident posts in the infirmary, and also served as surgeon captain in the Zululand Field Force, when he was decorated for his services in 1906. After filling the post of medical registrar and assistant director of the Clinical Laboratory in Manchester he became assistant medical officer and also honorary physician to the Ancoats Hospital, and at both institutions his early death is greatly deplored, as depriving them of the services of an extremely capable and promising physician.

From the beginning of his scientific career Lea took a great interest in cardiology. He was the author of papers that appeared in many medical journals on various aspects of the subject; for example, a paper on Cardiography, which was published in *Knowledge;* one on the Digitalis Effect in Auricular Fibrillation, which appeared in the *Medical Chronicle;* interesting papers on Paroxysmal Tachycardia in the *Quarterly Journal of Medicine;* and an essay on Bradycardia in our own columns. To these columns, moreover, he was an editorial contributor for many years, and although the subjects on which he wrote were often controversial, and sometimes he might have taken part in the controversy, he was always able to maintain an open mind and treat, in his position as an anonymous contributor, the different opinions of others with perfect fairness.

At the early part of the war he held a temporary commission in the Royal Army Medical Corps, but his health broke down and he was invalided out of the Army. He repaired to Frimley, where after periods of apparent improvement he died.

Dr. Lea's wife was a daughter of the late Dr. Thomas Buzzard, the famous neurologist.

[1] London: Baillière, Tindall, and Cox. 1919. Pp. 300. 7s. 6d.

THE LATE LIEUTENANT-COLONEL E. F. DRAKE-BROCKMAN.

WE have received the following additional particulars of the late Colonel Drake-Brockman, a short account of whose life appeared in our issue of May 17th. He came of a family whose members have given much of their time and energies to various forms of work in India. His father served in the Mysore Commission, and retired as a Colonel about the year 1860. The eldest son was a lawyer of position in Madras, the second was a civil engineer in the North-West, the third a police officer, the fourth a Royal Engineer (Colonel R. R. Drake-Brockman, who is still living), and the fifth retired in 1894, after having served for 28 years in Madras. At St. George's Hospital Colonel Drake-Brockman's extremely neat dissections were appreciated, and he was prosector of the Royal College of Surgeons of England in 1864 and 1865. After entering the Indian Medical Service he served for a short time as surgeon to the 2nd Madras Cavalry at Arcot before being appointed resident surgeon to the General Hospital, Madras. In this capacity he had sole charge of the out-patient department, and his was the duty of performing the urgent operations in the absence of the senior surgeon in charge. All the post-mortem examinations were performed by him, and he happily combined the post of pathologist with that of lecturer in general pathology in the Madras Medical College, to the great advantage of many generations of students. Drake-Brockman was appointed permanent surgeon in charge of the eye infirmary (now the Government ophthalmic hospital of Madras) and was superintendent and surgeon from 1874 to 1892. During this period of service he carried out the whole duties of the hospital with its 80 beds with the aid of a military apothecary and two native hospital assistants. The number of out-patients daily numbered from 60 to 110, and the number of operations increased from about 70 to 100 in 1872 to nearly 2000 in 1892, every operation, both major and minor, being performed by the surgeon himself. Colonel Drake-Brockman was married twice. His first wife was Isabella Forbes, daughter of the late Rev. G. W. Pope, of Bangalore, who died in 1896. A few years later he married again, and his widow, three sons, and a daughter survive him.

THE LATE MR. W. POWELL.—William Powell, F.R.C.S. Eng., who died recently at the age of 79, was a well-known figure in Torquay. He received his medical education at the London Hospital, and qualified in 1861 as M. and L.S.A. In the following year he graduated M.B. at the University of London, taking the F.R.C.S. Eng. by examination in 1865. After holding resident appointments at the London Hospital, he became resident medical officer to the Tower Hamlets Dispensary, and subsequently went to Torquay, where he became house surgeon to the Torbay Hospital and Provident Dispensary, being senior physician at the time of his death.

THE GENERAL COUNCIL OF MEDICAL EDUCATION AND REGISTRATION.

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ON Tuesday, May 27th, the Council began its summer session at its offices, 44 Hallam-street, London, W., under the Presidency of Sir DONALD MACALISTER.

The official notifications of appointment to the Council were read in respect of Dr. Benjamin Bloomfield Connolly, C.B (Society of Apothecaries of London); Dr. Sydney Russell Wells (University of London); Dr. Thomas Wardrop Griffith, C.M.G. (University of Leeds); Dr. Thomas Sinclair, C.B. (University of Belfast).

The President's Address.

Sir DONALD MACALISTER commenced his address with a tribute to the gallantry of those who had fallen in the war. Congratulating three members of the Council, Sir Norman Moore, Sir Charles Tomes, and Sir T. Jenner Verrall, on their recent distinctions, he pointed out the signal service rendered both in mobilisation and demobilisation by the statutory bodies which dealt with the recruiting problem as it affected the medical profession throughout the war. He welcomed back Colonel Norman King, the Registrar, saying that his brevet rank marked the importance of the duties which he had discharged, while he made a warm acknowledgment of the manner in which Mr. A. J. Cockington had carried out the Registrar's functions during his absence. In alluding to the retirement of four members of the Council, he introduced their successors with a few words suggesting the appropriateness of their appointments, and at the same time expressed sincere regrets at the death of Dr. A. Bateman, the late secretary of the Medical Defence Union, "who in cases which came up for inquiry before this tribunal did much to assist it in reaching a just decision; he was always ready to apply his extensive legal and medical knowledge to professional causes." He announced the appointment of Mr. Thomas H. Graham as Registrar of the Scottish Branch in the room of the late Mr. James Robertson, and foreshadowed the rest of his address by alluding to the fact that a dearth of doctors would leave many arrears to be overtaken, the immediate problem being proper distribution of the existing supply.

Ways and Means.

"In respect of finance," said Sir Donald MacAlister, our surplus of revenue over expenditure at the end of 1918 was lower than the year before. But it amounted to some £341, and was thus better than we expected. Economy during the Council's sessions has appreciably diminished its expenditure. The current year is likely to be our worst in respect of income from registration fees, and we may find ourselves at the end of it with a balance on the wrong side; but thereafter we may look for better times."

Concerning the actual numbers of the medical profession he gave the following information:—

"The Medical Register, whose issue has been greatly delayed by difficulties as to paper and by the pre-occupation of the printers with Government work, shows that 1077 new names were added, and 946 were removed on account of death, in 1918. Of the new names, 148 were entered in the Colonial List and 18 in the Foreign List. Taking account also of restorations on the one hand and erasures on the other, the net increase in the number of registered practitioners for the year is 107.

To the Dentists Register 147 names have been added and 104 removed, giving a net increase for the year 1918 of only 43. This is an improvement on the preceding year, when only 12 names were added; but it is still far from meeting the need of the country for qualified dental practitioners.

Since November the registrations on the Colonial List have greatly multiplied. Many Australian and Canadian graduates, while awaiting their return overseas, have thus sought legal qualification for practice in this country, chiefly (so we understand) with a view to improving their experience and giving helpful service in the hospitals.

The Students' Registers for 1918 show that while 2253 began medical study during the year only 161 entered upon the dental curriculum. The causes of this shortage of dental students have, as you know, been the object of careful inquiry by a Departmental Committee, to which I will refer later.

At the instance of the Ministry of National Service I again requested the authorities of the medical schools of the United Kingdom to furnish me with returns showing the number of students actually in attendance on courses of professional instruction in January, 1919. This final War Census showed that the total number, which in October, 1917, was 7048, and in May, 1918, was 7630, had risen in January, 1919, to 9490. Between May, 1918, and January, 1919, the first-year students had increased from 2043 to 2907, as compared with 1480 registered in 1913. The junior students had thus practically doubled since the year preceding the war. But the students in the final year of their curriculum numbered only 936 men and 222 women, barely enough to supply to the Register the normal increment of newly qualified practitioners during the current year."

Of the first-year students who were on service he said that they had returned in overwhelming numbers to the summer session, so that accumulated freshmen of a succession of years have joined with a number of educated men and naval and military officers to enter for the first time on the medical curriculum, flooding the schools, at some of which admission has been perforce refused to normal students who had commenced work. Equipment has been improvised and temporary instructors provided, and he thought that during the summer arrangements could be adjusted, but not without heavy expenditure, which the State would have partially to meet. He held that within five years the depletion in the ranks of the profession caused by the war would be more than made good, but he warned the Council that the preliminary tests of the curriculum, especially in general education, must be raised, while instruction of the students in essential subjects would have to be condensed and abbreviated, a reform that would be made possible when the student came for instruction with a mind already trained and furnished and able to read intelligently for himself.

"The Entrance Board of the Scottish Universities," he said, "has already decided to assimilate the conditions for admission to the Faculty of Medicine to those for admission to the Faculties of Arts or Science. We all desire that, as there is no lack in the number of aspirants to a professional qualification, so their shall be no question of their intellectual fitness to embark on professional study. If we could safely assume that medical students were all well-grounded and well-trained at school, and had all in some adequate measure learned how to learn, it would be easier for medical teachers to make their scientific instruction 'intensive,' and to broaden the professional courses so as to cover the special aspects and developments of medicine that press for inclusion in the curriculum. We cannot say that the assumption is yet justified; but the policy of the Council is, and ought to be, to hasten the attainment of the educational standard it implies, and the time is ripe for further advance in this direction."

Medicine in Parliament: the Ministry of Health, the Registration of Nurses, the Dogs' Protection Bill, the Reform of Dentistry.

Sir Donald MacAlister then alluded to the measures of importance to the profession of medicine now progressing in Parliament. With regard to the Ministry of Health Bill he pointed out that it had undergone transformation, inasmuch as the clauses relating to Scotland had been embodied in a separate Bill providing for a Scottish Board, and the omission of Ireland from the scope of the original Bill had been supplied by the insertion of clauses establishing a corresponding Board of Health for that country.

"These and other points," continued Sir Donald MacAlister, "to which, at your request, I called the Lord President's attention, have received careful consideration from the Government; and the amendments introduced at its instance show that an endeavour has been made to give effect to your suggestions. The Bills, as you are aware, provide little more than the machinery for concentrating in a single Department, for each division of the Kingdom, the administrative activities concerned with public health that are now distributed over numerous Departments. The conditions of transfer are in many instances undefined; they have yet to be determined by Orders in Council, the drafts of which will be submitted for public discussion. Much will depend on their terms, and it may be expedient that the Council should empower the Executive Committee to consider such draft orders as they are issued, and if necessary to make representations thereon in the light of any general instructions given by the Council. But much more will depend on the motive power actuating the departmental machinery, and the spirit in which it is worked by our administrators. The provision of Consultative or Advisory Councils, free to offer their counsel to the responsible Minister on matters of which they have special knowledge, will, it is hoped, afford to the medical profession full scope for exercising a helpful influence in the solution of the manifold problems in State medicine that confront the new departments."

With regard to the two Bills before Parliament providing in different ways for the registration of nurses, Sir Donald MacAlister said that though the Bills were at different stages of progress, an attempt would be made, he had learned, to consolidate or reconcile them. He pointed out that while the proposals fulfilled some of the conditions approved by the Council, in both Bills there was omitted the provision, deemed essential by the Council, that the rules framed by any registration authority should be considered by the Council before final approval by the Privy Council.

With regard to the Dogs' Protection Bill, he said that if it were passed into law it would have the effect of arresting the progress of exact knowledge, but he was not without hope that reasonable counsels, inspired by protests made in the interests of preventive and curative medicine, would in the end prevail over uninformed prejudice.

With regard to the present condition of dental practice, he said :—

"The report of the Committee, appointed by the Lord President at the request of this Council to inquire into the extent and gravity of the evils of dental practice by persons not qualified under the Dentists Act, was issued in February and has been circulated to members. The Dental Education and Examination Committee have had the report under consideration and will have a communication upon it to make to you.

The Departmental Committee agrees with the Council in several significant conclusions. It is not needful that I should mention to-day more than the following :—

(1) That very grave evils are associated with the unqualified practice of dentistry.

(2) That the supply of qualified dentists is at present insufficient to meet all public requirements.

(3) That the main causes of this shortage are the unsatisfactory state of the law in regard to unqualified practice and the duration and cost of training for a dental qualification.

(4) That to meet the evils disclosed the legal prohibition of dental practice by unregistered persons is essential.

(5) That, under prescribed conditions, unregistered persons who have reputably practised dentistry for five years should, in the event of prohibition being enforced, be admitted to registration as 'dentists' or 'dental practitioners' by a special (*ad hoc*) committee, including members of this Council.

The Committee proposes that a Statutory Dental Board shall be constituted, under this Council, for the government of the dental profession thus enlarged. The Board would have the charge of the new Register, and exercise disciplinary control over all registered persons, subject in certain cases to appeal to the whole Council. The dental members of the Board would be made members of the Council. The Board would, moreover, administer a new fund, derived from the annual licence fees which it is proposed that registered dental practitioners should pay, devoting the surplus, after meeting expenses, to such purposes as dental scholarships, aid to dental schools, and dental research. Weighty suggestions are made by the Committee with regard to the minimum curriculum for dental students, and the provision of public dental services. These will doubtless receive, as they deserve, the fullest consideration by the Council and by the Government. The essential recommendations, on which for the moment attention will naturally be concentrated, are those dealing with (1) the prohibition of unlicensed practice in the future, and (2) the registration for the purpose of regulation and control of unregistered practitioners who have, without hindrance of the law as it stands, acquired a reasonable measure of experience by actual practice in the past.

The Departmental Committee is justified in its conclusion that, in any fresh legislation, these two proposals must be held to stand or fall together. I judge from the discussions that have taken place here that this is also the conviction of the Council, based not only on its experience in administering the Dentists Act for over 40 years, but also on its study of the development of dental legislation in the Overseas Dominions and in foreign countries.

The final conclusion of the Departmental Committee urges, in terms even stronger than those used by the Council, the imperative necessity for legislative reform. 'The State cannot afford to allow the health of the workers of the nation to be continuously undermined by dental neglect.' 'The present anomalous position ..... casting undeserved odium and dishonour on a scientific profession, is intolerable, and should be dealt with immediately.'

The Council could not desire a fuller vindication of the representations it made to the Lord President. The responsibility for the next step rests with the Government and with Parliament."

A vote of thanks to the President for his address was carried by acclamation.

The Yearly Tables and the Appointment of Committees.

The following committees were appointed :—

Business Committee.—Dr. Norman Walker (chairman), the President, Sir Francis Champneys, Dr. Macdonald, Dr. Magennis.

Pharmacopœia Committee.—The President (chairman), Sir Norman Moore, Dr. Hopkins, Dr. Russell Wells, Dr. Caton, Dr. Cash, Dr. Norman Walker, Sir John Moore, Dr. Kidd.

Finance Committee.—Sir Charles Tomes (chairman), the President, Dr. Norman Moore, Mr. Hodsdon, Sir Arthur Chance.

Dental Committee.—The President (chairman), Mr. Waring, Sir Charles Tomes, Mr. Hodsdon, Sir Arthur Chance.

Dental Education and Examination Committee.—Sir Charles Tomes (chairman), the President, Mr. Waring, Mr. Hodsdon, Dr. Knox, Sir Arthur Chance, Dr. Coey Bigger, Sir Arthur Newsholme (for special business).

Students' Registration Committee.—Sir Norman Moore (chairman), the President, Dr. Langley Browne, Dr. Mackay, Dr. Littlejohn, Sir Bertram Windle, Dr. Kidd.

Penal Cases Committee.—The President (*ex-officio*), Sir Charles Tomes, Sir Francis Champneys, Dr. Norman Walker, Sir Bertram Windle.

Executive Committee.—The President (*ex-officio*), Sir Norman Moore, Dr. Elliot Smith, Sir Charles Tomes, Dr. Langley Browne, Mr. Hodsdon, Dr. Norman Walker, Sir John Moore, Sir Arthur Chance.

After some satisfactory discussion of a penal case the Council adjourned.

WEDNESDAY, MAY 28TH.

The session was occupied in the discussion of penal cases.

Medical News.

UNIVERSITY OF CAMBRIDGE: A DIPLOMA OF PSYCHOLOGICAL MEDICINE.—Courses in preparation for Parts I. and II. of the examination for the above diploma will be held at the Psychological Laboratory, Cambridge, from August 2nd to 30th. The classes will be conducted as follows :—

Part I. : Psychology with practical work, Dr. J. P. Lowson; Anatomy and Physiology of the Nervous System with practical work, Dr. E. D. Adrian. Part II. : Neurology, Dr. Adrian; Psychiatry, Lunacy Law and Administration, Dr. M. A. Archdale, superintendent of the Cambridge County Asylum; Psychopathology, Professor W. H. R. Rivers.

For fees and further particulars, application may be made to Dr. C. S. Myers, at the Psychological Laboratory of the University.

ROYAL COLLEGE OF SURGEONS OF EDINBURGH.—At the meeting of the Royal College of Surgeons of Edinburgh, held on May 19th, the following passed the requisite examinations and were admitted ordinary Fellows :—

Douglas Hume Bett, M.B., Ch.B. N.Z., M.R.C.S.; Charles Bouck, M.B. Toronto, Captain, C.A.M.C.; Oswald Tilson Dinnick, M.B. Toronto, M.R.C.S.; Haji Hyderali Khan, L.M.S. Bombay, M.R.C.S.; Arthur Vincent Meehan, M.B., Ch.B. Sydney; James Thomas Wall, M.D., C.M. McGill, M.R.C.S., Captain, C.A.M.C.

At the same meeting the Bathgate memorial prize, consisting of bronze medal and set of books, was, after a competitive examination in materia medica, awarded to Mr. William Frederick George Radford.

SOCIETY FOR THE STUDY OF INEBRIETY.—The next meeting of this society will be held in the rooms of the Medical Society of London, 11, Chandos-street, W., on Tuesday, July 8th, at 4 P.M., when a short address will be delivered by Sir Alfred Pearce Gould, the President, after which Professor G. Sims Woodhead will open a discussion on "Alcohol and Alcoholism in Relation to Problems of Demobilisation."

GROCERS' GIFT TO THE BLIND.—The Federation of Grocers' Associations has just completed the raising of the round sum of £10,000 for the purpose of equipping and permanently endowing a convalescent and holiday home for blinded Service men. A cheque for £5480 was last week handed to Queen Alexandra, patron of St. Dunstan's, that sum being the balance of the fund. The home will be at Brighton, at the very suitable premises known as West House.

LONDON PANEL COMMITTEE.—At its last meeting the Committee approved a scheme for the establishment of a "Standing Joint Committee of Local Medical and Panel Committees for London and the Northern Home Counties"—

(1) To act as a means of consultation among constituent Panel Committees and to assist in coördinating their work; and (2) to consider anything which it might appear desirable to suggest to the Panel Committees in the group as likely to advance the common interests of insurance practitioners in the area.

The Standing Joint Committee will consist of two representatives each of the panel committees for London, Middlesex, Hertfordshire, Essex, West Ham, and Southend, together with the three representatives of the whole area upon the Insurance Acts Committee of the British Medical Association.

GREAT NORTHERN CENTRAL HOSPITAL.—The special constables of Scholefield-road Police Station, Upper Holloway, have contributed during the war over £200 for the upkeep of beds in the military annexe of the hospital.—A cinema film entitled "A Visit to the Great Northern Central Hospital" was exhibited last week at the Electric Coliseum, Harringay, the manager reporting very favourably on the interest aroused.—Two houses, "Summerlee" and "Park View," at East Finchley, lent by Mr. Kennedy Jones, M.P., will provide 60 convalescent beds for discharged disabled soldiers and civilians.

ASYLUM WORKERS' ASSOCIATION.—The annual meeting of this association was held on May 21st at 11, Chandos-street, London, W., the chair being taken by Lieutenant-Colonel D. G. Thomson, R.A.M.C., medical superintendent of the Norfolk County Asylum and an ex-President of the Medico-Psychological Association. The recent decease of the President, Sir John Jardine, Bart., was feelingly alluded to by the chairman and by Sir William Collins, who referred to Sir John Jardine's valuable assistance in the passing of the Asylums Officers' Superannuation Act, 1909, and his efforts to obtain further concessions in favour of asylum staffs. The re-election of the Central Executive Committee was proposed by Sir Frederick Needham, Commissioner of the Board of Control, and the usual formal business was transacted. The number of members at the end of 1918 was reported as 2171.

ROYAL INSTITUTE OF PUBLIC HEALTH: ANNUAL CONFERENCE.—In issuing their invitation to municipal authorities for the Annual Conference, to be held in the last week of June, attention is called by the council of the institute to the opinion of the Local Government Board that one of the delegates should be the medical officer of health. Tickets of membership are £1 1s. The address of the institute is 37, Russell-square, London, W.C. 1.

AT the request of the Local Government Board Sir W. Arbuthnot Lane has been appointed by the Royal Society of Medicine to represent the Society at the Conference of the American Medical Association (the "Victory Meeting") to be held in Atlantic City from June 9th to 13th.

THE Morison lectures will be delivered before the Royal College of Physicians of Edinburgh by Lieutenant-Colonel A. Ninian Bruce, R.A.M.C., in the Hall of the College on Monday, Wednesday, and Friday in next week commencing each day at 5 P.M. The subject taken is the Functional Nervous Diseases of the War.

WEST LONDON MEDICO-CHIRURGICAL SOCIETY.—The next meeting of this society will be held at the West London Hospital on Friday, June 6th, at 8.30 P.M., when a paper will be read by Dr. Rickard Lloyd entitled, "Neuro-vascular Storms: Some Associated Nervous and Circulatory Symptoms, with Cases." Sir George Makins will deliver the Cavendish lecture at the West London Hospital on Friday, June 20th, at 8.30 P.M., on "The Rôle of the Consulting Surgeon in War." The annual dinner will be held at Pagani's, Great Portland-street, London, W., on Thursday, July 10th.

SOCIETY FOR THE STATE REGISTRATION OF TRAINED NURSES.—At a public meeting held at the Medical Society's rooms, 11, Chandos-street, London, W., on Friday, May 23rd, Mr. Herbert J. Paterson being in the chair, resolutions were carried to the following effect:—

1. This meeting protests against the action of the College of Nursing, Ltd., which, having failed to obtain the substitution of the governing body provided in its Bill for the State Registration of Nurses, for that defined in the Bill promoted by the Central Committee—as amended on the recommendation of the Local Government Board by Standing Committee E in the House of Commons—has introduced a rival Bill into the House of Lords, thereby attempting to confuse Parliament, and to wreck the Bill which has received so much sympathetic support from all parties in the House of Commons.

2. This meeting of trained nurses desires to express the most emphatic condemnation of the breach of faith with the nursing profession of the College of Nursing, Ltd., in eliminating from its Bill for the State Registration of Nurses, now before the House of Lords, the subsection which guaranteed that five-sixths of the representatives elected by the registered nurses on to the General Nursing Council should be nurses, thus failing to *secure* a single seat to nurses on their own governing body.

CENTRAL MIDWIVES BOARD.—A special meeting of the Central Midwives Board was held at Queen Anne's Gate Buildings, Westminster, on May 22nd, with Sir Francis H. Champneys in the chair. Three midwives were struck off the Roll, the following charges, amongst others, having been brought forward:—

That being in attendance at a confinement and the child suffering from inflammation of and discharge from the eyes, the midwife did not explain that the case was one in which the attendance of a registered medical practitioner was required, as provided by Rule E. 21 (5), and medical aid having been sought for the child she failed to notify the local supervising authority thereof, as required by Rule E. 22 (1) (a). The midwife not being scrupulously clean in every way, as required by Rule E. 2; when called to a confinement she did not take with her the appliances and antiseptics required by Rule E. 3; she did not take and record the pulse and temperature of her patients at each visit, as required by Rule E. 14, and did not keep her register of cases as required by Rule E. 24.

LONDON SCHOOL OF MEDICINE FOR WOMEN.—At the London (Royal Free Hospital) School of Medicine for Women, Hunter-street, Brunswick-square, the following scholarships and exhibitions will be awarded during the year:—(1) St. Dunstan's Medical Exhibition, £60 a year for 3 or 5 years; (2) Mrs. George M. Smith Scholarship, £50 a year for 3 or 5 years; (3) Isabel Thorne Scholarship, £30 for 1 year (the three scholarships will be awarded on the result of an examination in (*a*) English language and literature, (*b*) mathematics and two of the following groups, (*c*) Latin, (*d*) French or German, (*e*) chemistry or physics; the examination will begin on July 1st, and forms of entry must be received not later than June 18th); (4) Mabel Sharman Crawford Scholarship, £20 a year for 4 years (this scholarship will be awarded on the result of an examination in (*a*) biology, (*b*) chemistry, (*c*) physics; the examination will begin on July 1st, and forms of entry must be received not later than June 18th); (5) Dr. Margaret Todd Scholarship, £37 10s. a year for 4 years (this scholarship will be awarded to a candidate who has entered for, or passed, the First Medical Examination of the University of London, or an examination giving exemption from it); (6) Sarah Holborn Scholarship, £20 a year for 3 or 5 years (this scholarship will be awarded preferably to a candidate who intends to become a missionary in foreign lands, and special consideration will be given to one who has been accepted as a prospective worker by the London Missionary Society; candidates must have passed the Matriculation or other examination qualifying for registration); (7) Agnes Guthrie Bursary for Dental Students, £50 for 1 year (this bursary will be awarded to a candidate qualified to register as a dental student). Applications for Nos. 5, 6, and 7 must be received by July 1st. Nos. 1, 2, 5, 6, and 7 will be awarded to candidates who are in need of financial assistance for the prosecution of their medical studies. Forms of application and full particulars can be obtained from the warden and secretary, Dr. Louie M. Brooks, London School of Medicine for Women, Hunter-street, Brunswick-square, W.C. 1.

THE RÖNTGEN SOCIETY.—The annual general meeting of the society will be held on Tuesday, June 3rd, at 8.15 P.M., at the Royal Society of Arts, 18, John-street, Adelphi, London, W.C. 2, when officers and members of council will be elected for the ensuing year.

THE CARAVAN CLUB OF GREAT BRITAIN AND IRELAND.—The annual dinner will be resumed this year and will take place on Monday, June 30th, at the Café Monico. Formal notices will be issued shortly, but in the meantime will any who desire to attend communicate with the honorary general secretary, Mr. J. Harris Stone, 28, Charing Cross-road, W.C. 2.

FOREIGN DECORATION.—The King has granted permission to Dr. Richard Arderne Wilson to wear the insignia of the Fourth Class of the Order of St. Sava conferred upon him by His Majesty the King of Serbia in recognition of his services to the Serbian sick and wounded under the auspices of the Serbian Relief Fund.

ROYAL MEDICAL BENEVOLENT FUND.—At the meeting of the committee held on May 13th 23 cases were considered and £310 voted to 21 of the applicants. The following is a summary of some of the cases relieved:—

Widow, aged 59, of L.R.C.P. Edin. who practised at Kobe, Japan, was left totally unprovided for with four children, two of whom are now married with families and unable to help, and the other two daughters can only help a little. Applicant when able acts as nurse or matron. Now unable to work owing to indifferent health. Voted £10.—Widow, aged 45, of M.B. Glasg. who practised at Sandbank, Argyllshire, and died in 1910. Was left without means, and endeavours to make a living by letting rooms. Has one son aged 11. Owing to the high cost of living finds it difficult to manage. Voted £10 in two instalments.—Daughter, aged 68, of M.D. Lond. who died 25 years ago. Mother, who was an annuitant of the Fund, has recently died. Applicant endeavours to make a living as a teacher of music, but owing to the high cost of living finds it impossible to meet expenses. General health very bad. Voted £18 in 12 instalments.—Widow, aged 61, of L.R.C.P. & S. Edin. who practised at Liverpool and died in 1894. Applicant has for some years acted as a mission worker, but owing to ill-health has had to give it up, and is without means. Applied in 1917, and was told to apply again when she had to give up her post. Voted £15 in 12 instalments.—Widow, aged 39, of M.R.C.S. Eng. who practised at Oxford and died in 1917. Was left with five children, ages now 2 to 15, three of whom are at school. Income £137 a year. Rent and rates £44. A brother-in-law who allowed her £80 a year has recently died. Finds it impossible to manage on her present income. Relieved once, £20. Voted £20.—Daughter, aged 49, of M.D. Dublin who practised in the Isle of Man and died in 1882. Owing to war conditions does not receive full dividends from investments. Receives £40 from friends and £7 10s. from dividends. Is an invalid and unable to work. Shares a house with a friend. Relieved four times, £17. Voted £5.—Daughter, aged 64, of L.S.A. Lond. who practised at Cheadle and died in 1874. Owing to ill-health applicant is unable to work. Income £25 from a friend," and earns about £5 by occasional sewing. Rent 4s. 9d. a week. Relieved 13 times, £130. Elected to an annuity of £20.—Daughter, aged 66, of M.R.C.S. Eng. who practised in London and Manchester and died when applicant was a child. Owing to ill-health, the result of a street accident in 1916, is unable to work, and has been living on the compensation she received and the grants from the Fund. Relieved five times, £34. Voted £12 in 12 instalments.—Widow, aged 64, of L.R.C.P. & S. Edin. who practised at Wigan and died in 1913. Was left very badly off, and son who used to help her had to join the Army, for whom she receives 9s. 3d. per week separation allowance. Only other income some old book debts, which during past year have realised £26. Relieved twice, £22. Voted £12.—Daughter, aged 70, of M.R.C.S. Eng. who practised in London and died in 1890. Applicant endeavours to make a living by letting rooms, but owing to the high cost of living and ill-health finds it difficult to manage. Relieved three times, £34. Voted £12 in 12 instalments.—Wife, aged 56, of M.R.C.S. Eng., who is paralysed and unable to work, and who had practised at Tunbridge Wells. There are 11 children, none married, and between them they allow £80 a year. Has an interest in the practice up to August, 1919, which brings £50 a year, and they have £130 from other sources. Some of the children still require educating. Relieved twice, £12. Voted £15.—Daughter, aged 34, of M.R.C.S. Eng. who practised in Yorkshire and died in 1906. Applicant a chronic invalid, and is at present in a home at 15s. 6d. per week. Brother-in-law who used to help now broken down in health and unable to work or continue help. Relieved twice, £27. Voted £18 in 12 instalments.

Subscriptions may be sent to the acting honorary treasurer, Dr. Samuel West, at 11, Chandos-street, Cavendish-square, London, W. 1.

Parliamentary Intelligence.

HOUSE OF LORDS.

THURSDAY, MAY 22ND.

The Ministry of Health Bill.

ON the order for the third reading of the Ministry of Health Bill, the LORD CHANCELLOR moved, in accordance with an undertaking by the Government at an earlier stage of the Bill, the insertion of words to meet the case of fraudulent remedies for the prevention and cure of diseases. He suggested that for this purpose the best means to be adopted was the strengthening of existing legislation. The need for legislative action in this matter was fully appreciated by the Government, and he was authorised to state that an attempt would be made to carry out at a very early date in a separate Bill the recommendations of the Select Committee of the House of Commons on Patent Medicines in regard to prosecutions. This course was far more likely to give effect to the wishes of the House than the amendment which had been discussed by their lordships. If the Bill he had mentioned became law there would be no failure on the part of the Law Officers of the Crown to give effect to the wishes of the House in regard to these prosecutions.

Lord BLEDISLOE welcomed the announcement that the Government would initiate legislation to carry out the recommendations of the Select Committee. Many cases went unpunished because it was not the business of anyone to initiate a prosecution.

The amendment was agreed to.

Viscount SANDHURST moved to insert a provision in Clause 7 that it should be lawful for two Under Secretaries of the Ministry to sit as Members of the House of Commons at the same time. He said he was willing to give an undertaking that in the first instance one of the Under Secretaries should be a member of their lordships' House.

The Marquess of CREWE opposed the amendment on the ground that no case had been made out for the immediate creation of these two Ministers.

Lord DOWNHAM said that although health was a most important matter, he hardly thought that five Ministers of Health were required to deal with it.

Earl CURZON (Lord President of the Council) said that this was an attempt to meet the frequent complaints from noble lords that the great departments of State were not represented by a Minister in that House. He advised the House to press that one of the Under Secretaries should continue to sit in the Upper House.

On a division the amendment was rejected by 49 votes to 26.

The Bill was then read a third time and passed.

TUESDAY, MAY 27TH.

Nurses' Registration Bill.

Viscount GOSCHEN moved the second reading of the Nurses' Registration Bill to provide for the training and registration of nurses. The basis of the Bill, he said, was the setting up of a General Nursing Council to control the nursing profession, and he hoped it would result in the additional advancement and betterment of nurses. He knew there was another Bill before the House of Commons dealing with the same subject, and he suggested that both Bills should be considered jointly by a Committee of both Houses.

Lord AMPTHILL moved the rejection of the measure on the ground that its primary object was not the State registration of nurses, but to secure the incorporation of a private company known as the College of Nursing, Ltd., some of whose members were opposed to State registration. The Bill was a thoroughly bad Bill.

Viscount KNUTSFORD maintained that the registration of nurses would not protect the public and would not protect the nurses themselves. Registration was no test of fitness. He should, however, vote for Lord Goschen's Bill because he thought it was the better of the two measures before Parliament.

Viscount SANDHURST, on behalf of the Government, expressed the hope that the House would consent to a second reading of the Bill. The Government desired to secure legislative recognition of the principle of registration as a protection for the nursing profession itself and also for the public. They did not, however, pledge themselves to acceptance of details. After second reading some arrangement could be come to regarding the Bill's future career.

On a division the second reading of the Bill was carried by 61 votes to 20.

Scottish Board of Health Bill.

The Scottish Board of Health Bill was read a third time.

HOUSE OF COMMONS.

WEDNESDAY, MAY 21ST.

Shortage of Medicine Bottles.

Mr. SPENCER asked the President of the Board of Trade whether he was aware that the retail chemists of Nottinghamshire were experiencing a shortage of medicine bottles; whether such shortage was due to his department insisting upon bottle-makers exporting 75 per cent. of their output; and, if so, what steps, if any, he proposed to take to secure a sufficient supply for home use.—Mr. BRIDGEMAN (Parliamentary Secretary to the Board of Trade) replied: I am aware that there is a shortage of medicine bottles, which is due to a large extent to a shortage of coal and labour for their manufacture. British makers are not required to export any portion of their output, and the actual exports at the present time are very small. Importation is being allowed at the rate of 50 per cent. of the imports of 1913.

FRIDAY, MAY 23RD.

The Dogs' Protection Bill.

The adjourned debate on the report stage of the Dogs' Protection Bill was resumed, and the House discussed a formal Government amendment which was a necessary antecedent to a subsequent amendment in the name of Sir HAMAR GREENWOOD (Under Secretary to the Home Office) to the effect that dogs shall not be used for purposes of experiment—

"Except on such certificate being given as is mentioned in the principal Act, stating, in addition to the statements required by Section 3 of that Act to be made in such certificate, that for reasons specified in the certificate the object of the experiment would necessarily be frustrated unless it is performed on a dog, and that no other animal is available for such an experiment."

Sir F. BANBURY opposed the amendment because it led the way to other amendments which cut at the root of the whole Bill. If the amendment were passed the objects for which the Bill was brought in were practically frustrated. There had been two arguments brought forward by the opponents of the Bill, and these were exemplified in a little leaflet which was sent out from the Research Defence Society and called "The Case Against the Dogs' Bill." In that leaflet there was a letter written by Sir Edward Schafer to the *Times*, in which he said:—

"It is hardly necessary to say the title of the Bill is a misnomer. Dogs are already absolutely protected from suffering in any experiments which require to be made upon them. No operation whatever can be performed on a dog without the express sanction of the Home Secretary. All operations must be conducted under complete anæsthesia, and any dog suffering pain as a result of operation must be immediately killed. Perhaps a hundred dogs are employed annually for experiments in this matter—certainly not more—whereas many thousands are killed every year, not with a view of extending knowledge, but simply for the sake of getting rid of them."

These statements were inaccurate. Under the Act of 1876 certificates could be signed by the presidents of various Colleges in the United Kingdom. A certificate under this section might be given "for such time or for such series of experiments as the person or persons signing the certificates might think expedient." Therefore it was absolutely misleading to say that no operation could be performed without the express sanction of the Home Secretary.

Captain ELLIOT: The certificate specifically states that—

"An experiment is not to be performed under this certificate until the licensee has been informed that it has not been disallowed by the Secretary of State."

That seemed an absolute protection.

Sir F. BANBURY said he did not care a rap what these honourable and learned gentlemen put upon their certificates. He was talking about the law, and in a month's time if they chose not to put that on their certificate there was no law to compel them to do so. The honourable baronet went on to deal with the evidence given before the Royal Commission of 1906, in which Mr. Byrne stated that a certificate might be given postponing the obligation to kill an animal until the object of the experiment was obtained; and also that a certificate might be given that the object of the experiment would be frustrated unless performed upon a dog or cat, this certificate not being required if the experiment was carried out under anæsthetics. The same witness stated that he thought painful experiments were necessary, and that it was impossible to give anæsthetics if it was desired to study the effects of bleeding and transfusion. He was asked if he thought garrotting would be a painful experiment, and he replied, "No, not if done properly." (Laughter.) Another statement in this evidence was, "I consider that it is perfectly right to inflict pain on animals." Therefore Sir Edward Schafer's statement that dogs were protected, and that there was no suffering, was manifestly incorrect. The honourable baronet proceeded to quote from a statement made by Dr. George Wilson in an address which he gave as President of the Section of State Medicine at the annual meeting of the British Medical Association at Portsmouth in

1899, when he said that he had not allied himself to the anti-vivisectionists, but accused his profession of misleading the public on the cruelties and horrors which were perpetrated on animal life. The medical profession were not all on one side in this matter, as was shown by letters he had received, including one from a well-known medical man who had been a Member of the House, Sir William Collins, wishing this Bill every success. The Royal Canine Defence League had secured a petition signed by something like 1300 medical men. As regards the question of cheapness, the honourable baronet observed that for the sake of saving £5 for a monkey those gentlemen who opposed the Bill wished to subject the greatest friend man ever had in the world to these tortures. The dog had saved men's lives and given his life for men. The monkey, as far as he knew, had not done that.

Hindrance of Progress of Medical Knowledge.

Mr. RAWLINSON intimated that while he should vote in favour of the Government amendment he should feel it his duty strongly to oppose the Bill on third reading. Was there, he asked, any other country in the world where men of science were subject to such restrictions, pains, and penalties as they were exposed to here? Instead of being treated as benefactors of the human race these men were hampered by licences which he thought were unnecessary and insulting. Experiments must be made, and the question was whether they should be made on animals or on human beings. The antivivisection societies would not be content with this Bill. They would want to go much further than that. If they had anyone they cared for who was ill they called in a medical man, who performed operations and similar matters. They trusted the doctor on such occasions, and why were they not prepared to do the same on this occasion? Did they really believe that these medical gentlemen who were opposing this Bill operated on dogs for the sake of cruelty? If a large part of the medical profession came forward to say that medical research would be injured by this Bill that was evidence which no Member of that House could ignore.

Investigations into Nature and Prevention of Rickets.

Captain ELLIOT said that there was an embarrassment of riches in the form of arguments in favour of the Government amendment to the Bill. The Bill was not a Bill to protect dogs, as indicated in its title. Dogs might be mutilated without any anæsthetic by all sorts of people as long as they were not qualified scientific men. If the title of the Bill were justified it should protect dogs against dog fanciers, and the man in the back shop with a rusty knife, and not merely the scientists. There were between three and four million dogs in the country, and while only a few scores were used by scientists for experiment hundreds of thousands were operated upon by sporting gentlemen who were not interfered with under this Bill. Experiments of the utmost promise to the human race were being carried on now which the Bill would bring to a dead stop. One of the gravest diseases affecting children in our great industrial cities was rickets. Anyone seeing a case of rickets, the child with humped back and bandied legs locked up for the rest of its life in a cage of bone and the key thrown away, would willingly go to any trouble, put out any amount of money, use any amount of endeavour and research in order to discover something by which this terrible disease could be averted.

Ten years ago Dr. Leonard Findlay, of Glasgow, and Professor Paton, also of that city, resolved to initiate a series of experiments to find out what they could about this terrible disease. There were experiments going on at Cambridge and in London. There were feeding experiments going on in many parts of England just now to try to find out the cause of rickets. Sir F. Banbury had made great play with the nobleness, the loyalty, the constancy, the beauty, and the devotion of dogs. What about the nobleness, the loyalty, the constancy, and the beauty of our children? They were engaged in research to find out what was the matter in regard to the cause of rickets, and they had good reason to believe that they were tracking it down. It was a defect of some constituent in the food of these children. Margarine was a perfectly good food, a very excellent food for fully grown people, but experiments and research into the properties of margarine were tending to show quite distinctly that it was deficient in vitamines. These vitamines were very small in amount and occupied no more bulk in the food than glue did in the construction of a chair. Yet they were absolutely vital to the health and proper growth of the creature fed upon this food. If margarine lacked these vitamines then it was not fit for a growing child. Butter did contain these vitamines, and here was an immediate case of research which was bearing fruit at this moment. To the vegetable oils of margarine there must be added some animal fats—suet or butter—to make it safe for growing children.

Would honourable Members wipe out an experiment like that and bring it to a dead stop? The man who did that was committing a sin against children, and it would be better for him if a millstone were hanged round his neck and he were cast into the sea. These feeding experiments could only be carried out on dogs because the dog was a suitable animal for the purpose. The dog could feed on flesh or on cereals, and they could change its diet and its digestion would not suffer, while the results of the experiment remained valid. One antivivisectionist declared that as man was to benefit by the experiments they should be carried out on man. On the same principle he supposed that they should be carried out on growing children. He had a record of experiments carried out on children in the United States, where a quantity of these fat-soluble vitamines was administered to some and withheld from others. In one case 32 children had a supply of these vitamines and only 2 developed rickets. In the other case 16 children did not get any of the vitamines and 15 developed rickets. Surely, when those children grew up to manhood they would look that experimenter in the face and ask what right he had to condemn them to a life of torture because he would not carry on the experiment on animals.

Captain SPENDER CLAY thought that the overwhelming numbers of the medical profession would not have signed the petition praying for the defeat of this Bill unless they had sound reason for doing so.

Colonel BURN, in supporting the Bill, said he had yet to find convincing proof that the dog was the only animal from which valid results could be obtained in these experiments.

The Good of Humanity and the Nation.

Sir A. GEDDES (Minister of National Service and Reconstruction) said, speaking not as a Minister but as a man who had seen a great deal of physiological work and many experiments upon many kinds of animals as a teacher in a medical school, he claimed as good a right as any Member to express the opinion that it was for the good of humanity in the widest sense that there should be experiments upon dogs for purposes of research. It was absolutely essential to choose the dog, as the information could not be got from any other animal, except man himself. It would be absolutely wrong of this country to deny to our surgeons the right to be taught by means of experiments carried out under properly safeguarded conditions. They had now to go abroad to learn. This was not a case where sentiment should rule, but justice. It was absolutely necessary that there should be in every school if it was to be efficient, and in every nation if it was to be efficient, a desire for knowledge for knowledge's own sake. There was no more powerful way of destroying that spirit than by putting up artificial barriers. He was not against supervision, but it must be supervision that was designed to help and not to hamper. As one who had been responsible for the recruiting service in this country it had been driven in upon him with greater and greater force that the population of this country was suffering from a high degree of physical inefficiency on wholly preventable grounds, and on removable grounds if science were given fair play and allowed to develop. He appealed, therefore, to the House to see that before this Bill became law everything was removed from it which would hamper the development of science and knowledge.

Major MCMICKING asked who could show that one man's life had been saved by these experiments on dogs? He thought it would be very difficult to prove.

The Mischievous Nature of the Bill: Value of the Amendment.

Sir W. WHITLA said he would prefer to oppose the Bill entirely, but the Government amendment had robbed this mischievous and objectionable measure of some of its worst features. He denied the allegation of cruelty against those who carried out medical research, stating that in his own personal experience at home and abroad he had never seen any real unnecessary suffering, or indeed any evidence at all of real pain inflicted in experiments on dogs. There was an underrating and in some cases an absolute denial of the good results of these experiments, and in the antivivisection propaganda there was a suppression of truth or a prevarication which was the worst form of lying. Not a word was said about the thousands of human lives which had been saved as a result of inoculation for hydrophobia. M. Pasteur had shown him a chart indicating how the mortality among the cases treated in Paris rose with every few hundred miles that the patients had to travel before they received treatment. He saw in the distance a vision of the absolute annihilation of rabies in dogs, but that could only be realised by compelling the protection of every dog by vaccination. As a result of legislation this country was already behind in the march of progress for the relief of human suffering. When he thought of the results that had followed experiments on animals he was, as an Englishman, positively ashamed of the sickly sentimentality shown in this country. Were they willing to take a back place in the noble race for the relief of human suffering and the prolongation of life? Were they willing to drive our best intellects to the Continent to practise in the laboratories of the Hun or alongside the Bolshevists of Vienna? The man

who voted for this Bill would be reversing Goethe's definition of man. He would subscribe to a creed that was blasphemous. It was not "man is the dog's god," but "the dog is man's god." He supported the amendment, not because he loved the dog less, but because he loved man more. He would feel himself more a man in opposing this rotten Bill root and branch.

Sir J. BUTCHER said he was opposed to the amendment which went to the root of the Bill, and would destroy all the value of the measure.

Medical Research and the Crusade against Disease.

Sir HAMAR GREENWOOD (Under Secretary to the Home Office) admitted that the Government amendment would defeat one object of the Bill—namely, the absolute prohibition of experiments on dogs, but at the same time it would give an additional precaution, and further supervision of all experiments. He appreciated the strong feeling of those who wanted to prohibit all experiments on dogs, but he took a more serious view. In their administration of the present Act the Home Office had as its main object the prolongation of life, the saving of life, and the alleviation of suffering. As the mouthpiece of the Home Office he proposed by his amendment to qualify the prohibitory clause in the interests of men, women, and children, and not primarily in the interest of dogs. The total number of persons who held licences during 1917 was 671 and only 279 of those acted under their licence and performed any operation whatever. Out of 55,000 experiments carried out in the same year a few hundred only were experiments upon dogs, most of them being harmless inoculation experiments that did not hurt the dog. The dog was only used, and could only be used under the existing law, in those cases where no other animal was available, and where unless the dog was used the object of the experiment would be frustrated. If the Home Secretary in issuing licences did not obey the spirit as well as the letter of the law he could be challenged by the House. The annual renewal of licences enabled the Home Office to supervise the whole matter. The amendment which stood in his name was based upon the report of the Royal Commission which reported in 1912, and in a paragraph in that report, which had the support of all the members of the Commission. All the other recommendations of the Report of the Commission had already been adopted by the Home Office. The vast majority of the medical and scientific profession were on the side of the Home Office in supporting this amendment. Those medical men who were against the majority of their professional brethren had a great responsibility in circulating pamphlets to Members of the House which they could not check without scientific knowledge. The Medical Research Committee, which was set up by the House, considered that the proposal of the Dogs' Bill would place an insuperable barrier on some of the chief paths of scientific progress. The real divergence of opinion on this matter was whether they would exalt the man above the dog or the dog above the man. He put the man first and he put the child even before the man. At this very moment experiments were going on under the Medical Research Committee which would be stopped by the Bill. We looked to our medical men to be our guides and helpers in the great crusade against disease, suffering, and untimely death, and because he believed the passing of this Bill would put an undeserved stigma on a noble profession he appealed to the House to accept the amendment.

The Bill Amended.

On a division the amendment was carried by 147 votes to 69.

Sir HAMAR GREENWOOD moved the substantive amendment based on the formal amendment on which the main discussion was taken, and this was agreed to.

Sir HAMAR GREENWOOD moved to alter the title of the Bill so that its object might be defined as "to impose further restrictions on the vivisection of dogs," instead of "to prevent the vivisection of dogs." This was agreed to.

The Report stage of the Bill was then concluded, and the third reading was fixed for June 27th.

Panel Practitioners' Remuneration.

Sir KINGSLEY WOOD asked the Secretary to the Local Government Board, as representing the National Insurance Commissioners, if he could state the amounts provided during the present financial year as extra remuneration in the nature of a war bonus or otherwise for medical practitioners on the panel, Civil servants and other officials in the employment of the Insurance Commission, and the agents and workers of the Approved Societies respectively.—Major ASTOR replied: In so far as the question is intended to refer to moneys provided from Exchequer funds, no comparison of amounts is possible, because the number of individuals involved in the four categories differs very widely; and, further, only those in one of the four categories receive their whole remuneration from Government funds. In the case of the first category the amount to be provided from the Exchequer during the present financial year for extra remuneration in the nature of a war bonus is £300,000, and in the case of the third category it is about £138,000. The increase in remuneration in the case of the second category cannot easily be separated from the total Drug Fund, of which it forms a part. The remuneration of the individuals in the fourth category is not met from Exchequer funds, except as regards the two ninths contribution to the administrative expenditure of the Approved Societies who employ them and are solely concerned in fixing their remuneration; and the Commissioners have no information as regards extra remuneration by way of war bonus which Approved Societies have accorded to their officials.

THURSDAY, MAY 22ND.

Midwives and Burial Certificates.

Mr. GILBERT asked the President of the Local Government Board whether his attention had been drawn to an inquest held recently on a stillborn child by the Southwark coroner, when certain malpractices were disclosed over the burial certificate given by the midwife; and whether, in view of these disclosures, he proposed to recommend the alteration of the law in order to prevent the continuance of the practice of allowing midwives to give certificates for burial purposes?—Major ASTOR replied: The answer to the first part of the question is in the affirmative. My right honourable friend will consider the advisability of altering the law.

MONDAY, MAY 26TH.

The Ministry of Health Bill.

The House considered the Lords' amendments to the Ministry of Health Bill.

Dr. ADDISON (President of the Local Government Board) moved that the House disagree with the amendment reducing the two Parliamentary Under Secretaries provided for under the Bill to one. He admitted that it was not a popular cause to defend, but it would be quite impossible for the Minister to do the work necessary under this Bill unless he was assisted by at least two good men in Parliament to whom he could delegate a great amount of the political work in connexion with the new Ministry.

Sir D. MACLEAN said for the first time since the House met he found himself supporting an increase in expenditure, but on this occasion he thought his right honourable friend was right in asking for a second Under Secretary. At no distant date, however, the Poor-law would be brought under the scheme of this Bill, and he asked Dr. Addison if he could give the House an assurance that when that took place he would not ask for another Under Secretary.

Dr. ADDISON said that he could give his right honourable friend that assurance fully now.

Lord HUGH CECIL said he was confident that the Minister and one Under Secretary could cope with the Parliamentary work of the new Ministry of Health.

After further discussion the House divided, when there voted: For the motion to disagree, 170; against, 25.

A Committee was appointed to draw up reasons for disagreeing with certain of the Lords' amendments.

TUESDAY, MAY 27th.

Relief of Medical Officers Abroad.

Sir ARTHUR FELL asked the Secretary of State for War if there was any need to keep doctors at Batoum with the British forces who were married, over 41 years of age, and who had spent 14 months or more with the Salonika forces at Salonika, Sophia, and Batoum, to the detriment of their private practices in England; if they had no work at Batoum and half of them could be sent away without detriment; and, if the number of doctors were really wanted there, whether younger unmarried men would be sent out to relieve the middle-aged men there now?—Mr. FORSTER (Financial Secretary to the War Office) replied: Medical officers are being demobilised as fast as the military situation permits, but at present it is quite impossible to demobilise all who are eligible. I have no information to the effect that officers with the armies of the Black Sea are not fully employed. In view of the conditions of service it is essential that the medical provision there should be adequate. The importance of relieving medical officers who are deserving of consideration on the score of age or length of service is fully realised, but at present owing to the large numbers who have been demobilised to meet urgent civil needs, I regret that it is not practicable to send out reliefs.

Prevention of Anthrax Bill.

The money resolution in connexion with the Prevention of Anthrax Bill was considered on Report and agreed to.

The Prevention of Anthrax Bill passed through Committee without amendment and was read a third time.

WEDNESDAY, MAY 28TH.

Medical Service Bill.

Major FARQUHARSON asked the President of the Local Government Board whether he was intending to introduce a

Bill this session which would establish a new system of general medical services for the population; and, if so, whether such Bill would provide a whole-time salaried service of doctors, including hospitals and clinics.—Dr. ADDISON replied: No, sir; immediately the Ministry of Health Bill becomes law I intend to set up the Consultative Councils under the Bill, including one to advise upon medical and ancillary services, as I have already explained to the House. To them I shall at once refer various questions in respect of the development of local health services, as I am anxious to proceed as speedily as possible with these matters; but I shall not submit any proposals to the Government on these matters until I have obtained their advice.

Demobilisation of Territorial Medical Officers.

Major DAVID DAVIES asked the Secretary of State for War whether, though the Territorial Force had not been disembodied, a number of Territorial officers of the Royal Army Medical Corps were being demobilised against their wishes and before they had had an opportunity of obtaining appointments or practices; whether their places were being filled by retired officers, who were receiving both pay and pension; and whether he would give any assurance that in future these Territorial officers would be given an opportunity to procure appointments or practices before they were finally compelled to relinquish their commissions.—Captain GUEST (Joint Parliamentary Secretary to the Treasury) replied: Territorial Force medical officers of the Special Reserve and officers holding temporary commissions in the Royal Army Medical Corps are being placed on the Retired and Unemployed List as quickly as possible, and, as far as is known at the War Office, no retired medical officer has replaced a Territorial Force medical officer. As regards the last part of the question, I regret that I cannot give any such assurance. My honourable and gallant friend is no doubt aware that great pressure has been brought to bear on the War Office to release every medical officer whose services can be spared to meet urgent civil requirements. This policy has been, and will continue to be, carried out as far as possible.

THE SERVICES.

ROYAL NAVAL MEDICAL SERVICE.

Surgeon Lieutenant-Commanders to be Surgeon Commanders: A. W. Iredell, F. C. Robinson, M. T. Male, C. H. Dawe, R. Thompson, W. K. D. Breton, E. S. Wilkinson, R. Kennedy, E. A. G. Wilkinson, J. H. L. Page, W. E. Ormsby, J. J. H. Rooney, A. F. Fleming.

Surgeon Lieutenants to be Surgeon Lieutenant Commanders: R. A. Rankine, Q. H. Richardson, H. White, L. A. Moncrieff, A. C. Paterson, H. R. Seargill, T. Cock.

Transferred to the Reserve List of Medical Officers: Surg. Lieut.-Cdr. B. Taylor.

To be temporary Surgeon Lieutenant: A. S. Bisset.

ARMY MEDICAL SERVICE.

Col. R. H. Penton retires on retired pay.

Temp. Col. W. Pasteur (Lieutenant-Colonel, R.A.V.C., T.F.) relinquishes his temporary commission on re-posting.

ROYAL ARMY MEDICAL CORPS.

Temp. Major L. G. Parsons (Captain, R.A.M.C., T.F.) relinquishes his temporary commission on re-posting.

Temp. Capt. P. W. Love to be Acting Major.

Capt. S. S. Dykes to be Acting Major whilst commanding troops on a hospital ship.

To be Captains (from Special Reserve): Capts. S. J. A. H. Walshe, W. Walker, G. A. Bridge (acting Major) (retains acting rank), F. S. Gillespie, J. A. L. Wilson (acting Major) (retains acting rank), B. C. O. Sheridan; Temp. Capts. D. McKelvey, A. W. P. Todd.

Temporary Captains to be Lieutenants and to be temporary Captains: H. C. Watson (acting Major) (retains acting rank), A. H. Clarke, T. B. H. Tabuteau.

Temporary Lieutenants to be temporary Captains: W. L. Stuart, W. J. G. Johnson, J. T. Reardon.

Officers relinquishing their commissions: Temp. Hon. Lieut.-Col. M. H. Gordon (and retains the honorary rank of Lieutenant-Colonel); Temp. Lieut.-Col. D. R. O'Sullivan-Beare (and retains the rank of Lieutenant-Colonel); Temp. Major H. W. Bruce (granted the rank of Lieutenant-Colonel). Temporary Majors retaining rank of Major: W. A. Chapple and R. J. D'A. Irvine. Temp. Capt. K. W. Mackenzie (granted the rank of Lieutenant-Colonel). Temporary Captains granted the rank of Major: T. Russell, P. H. MacDonald, R. A. Lake, J. W. Bennett, A. Massey, A. G. Cook, J. P. Musson, J. Maxwell, R. E. F. Pearse, G. S. Hett, J. A. C. Roy, J. M. Pinkerton, M. W. B. Oliver. Retaining the honorary rank of Captain: Temp. Hon. Capt. B. M. Richardson. Temporary Captains retaining the rank of Captain: D. L. Morrison, J. G. Macqueen, A. D. Low, C. C. Kennedy, R. S. Miller, B. H. Moore, J. D. Macfie, W. H. McKinstry, T. H. Martin, G. A. Maling, H. N. M. Puckle, J. N. Meade, F. J. Rawlinson, J. F. W. Leech, W. S. Langworthy, W. D. Newcomb, G. T. Mowat, A. W. Mather, J. F. Penson, J. C. A. Ridgway, T. B. Lawson, D. Matthew, P. Henderson, W. MacKwen, R. W. D. Hewson, P. R. Eskell, J. G. Priestly, L. Pern, H. F. Warwick, A. Roemmele, W. W. Galbraith, G. A. Jelly, J. B. Matthews, A. Robin, D. E. Morley, B. H. Wedd, W. R. Etches, J. M. Morgan, A. C. Campbell, E. L. Clay, K. B. Dickson, A. S. Campbell, E. G. Evans, T. R. Coultrey, E. U. MacWilliam, J. B. Dalton, H. G. Rice, W. S. Nason, S. A. Riddett, F. S. Poole, C. H. Nash, P. Poliard, H. A. Beaver, A. Riley, R. T. A. Patchett, A. A. Rutherford, M. G. Dobbyn, G. A. F. Heyworth, G. A. Hoffmann, G. R. Harcourt, E. W. Martin, G. Rainford, I. H. Lipetz, W. C. MacFetridge, A. C. Jepson, K. Kennington, D. Mackinnon, J. Hunter, W. Halliwell, R. W. Macpherson, P. Howe, W. G. Parker, H. H. Prentiss, J. P. McGowan, G. W. Davies, H. B. Moyle, K. Playfair, H. Matthews, W. L. Paterson, J. E. Ratcliffe, J. C. Ogilvie, G. J. Langley, T. M. O'Donnell, D. McNeill, C. J. R. Aubrey, R. T. Dobson, F. W. Joynes, H. G. Pesel, J. D. Jones, L. C. Rarke, G. W. Doran, J. Keyms, J. Mource. Temporary Lieutenants retaining the rank of Lieutenant: J. G. Louden, E. L. N. Pridmore, G. H. Dunn, A. H. Davidson.

Canadian Army Medical Corps.

Temp. Capt. (acting Major) F. J. Tees to be acting Lieutenant-Colonel while employed at Granville Canadian Special Hospital, Buxton, and Temp. Capt. W. S. Gallie to be acting Major while employed at the same institution.

Temporary Majors to be acting Lieutenant-Colonels: T. H. Bell (and to command a Field Ambulance), and L. H. McKim (while employed at No. 3 Canadian General Hospital).

Temporary Captains to be acting Majors: A. M. Yeates (while employed at No. 3 Canadian General Hospital), and D. G. K. Turnbull, M.C. (while employed at No. 13 Canadian Field Ambulance).

SPECIAL RESERVE OF OFFICERS.

Capt. J. H. Beverland relinquishes the acting rank of Major on re-posting.

TERRITORIAL FORCE.

Lieut.-Col. S. G. Barling is restored to the establishment on ceasing to hold a temporary commission in the Army Medical Service.

Major (Brevet Lieut.-Col.) (acting Lieut.-Col.) B. M. H. Rogers relinquishes his acting rank on ceasing to be specially employed.

Major A. H. Hogarth is restored to the establishment.

Major (acting Lieut.-Col.) W. E. Miles relinquishes his acting rank on ceasing to be specially employed.

Capt. (acting Major) J. W. Anderson relinquishes his acting rank on ceasing to be specially employed.

Capts. (acting Majors) B. Hughes, C. P. Brentnall, J. G. Cooke, C. G. K. Sharp, and E. N. Butler relinquish their acting rank on ceasing to be specially employed.

Capt. H. M. Fort to be acting Major whilst specially employed.

1st Eastern General Hospital: Capts. D. Mallam, W. B. Marshall, and H. S. C. Starkey are restored to the establishment.

2nd Eastern General Hospital: Capt. F. A. S. Hutchinson is restored to the establishment.

3rd London General Hospital: Major Sir John R. Bradford, K.C.M.G., is restored to the establishment on ceasing to hold a temporary commission in the Army Medical Service. Capt. C. A. Pannett is restored to the establishment on ceasing to hold a temporary commission in the R.A.M.C.

1st Southern General Hospital: Capt. L. G. Parsons is restored to the establishment on ceasing to hold a temporary commission in the R.A.M.C.

2nd Southern General Hospital: Major C. A. Morton is restored to the establishment.

Sanitary Service: Capt. (acting Major) A. G. R. Foulerton relinquishes his acting rank on ceasing to be specially employed. Capt. (acting Major) J. M. Hamill relinquishes his acting rank on vacating the appointment of Deputy Assistant Director of Medical Services.

1st London Sanitary Company: Capt. E. W. Gregory is restored to the establishment.

2nd Welsh Field Ambulance: Capt. J. P. H. Davies relinquishes his commission and retains the rank of Captain.

ROYAL AIR FORCE.

H. A. Treadgold is granted a temporary commission as Captain and to be temporary Major.

The undermentioned are transferred to the unemployed list: Capts. J. E. Cable, C. K. Attlee, D. A. MacPherson; Lieut. W. C. A. Ovey.

INDIAN MEDICAL SERVICE.

John Hewan to be Major in the Medical Corps of the Indian Defence Force.

Major W. Lapsley, whose services have been replaced by the Government of India at the disposal of the Government of the United Provinces, is appointed Civil Surgeon of Gonda. Major J. Cunningham has been appointed Director of the Madras Bacteriological Laboratory at Guindy. The services of Major A. Whitemore have been placed at the disposal of the Government of Burma. Major J. C. G. Kunhardt has been appointed to officiate as Director of the Bombay Bacteriological Laboratory, Parel. Major L. B. Scott is appointed Civil Surgeon, Khasi Hill. Colonel John Garvie is appointed a Member of the Council of the Chief Commissioner of Assam, vice Colonel Banatvala, C.S.I. Lieutenant-Colonel D. McCay officiates as Professor of Materia Medica, Medical College, Calcutta, vice Lieutenant-Colonel B. H. Deare. Major E. O. Thurston is placed on duty under the Home Department. Lieutenant-Colonel F. P. Maynard and Lieutenant-Colonel S. H. Henderson retire from the service. Captain C. Hibbert, R.A.M.C. (T.F.), has been appointed a Specialist in Advanced Operative Surgery, 5th (Mhow) Division.

Major R. M. Dickson, R.A.M.C., succeeds Col. G. A. Bannatyne as Commandant of the Bath War Hospital.

DEATHS IN THE SERVICES.

Philip Mackay Ellis, Major-General, A.M.S. (retired), who died at Pwllheli on May 16th, was a son of John Ellis, of Chudleigh, Devon. He was born at Madeira on Jan. 30th, 1855. Entering at St. George's Hospital in 1872, he took the Conjoint Board qualification in 1876 and joined the Army Medical Service in August, 1877. He was promoted Surgeon-Major in August, 1889, Lieutenant-Colonel in 1897, and Colonel in 1904. In December, 1903, he became Surgeon-General, and he retired from the service in 1910. Ellis served in Burma, 1886-87, and had the medal. He was re-employed during the Great European War, and held the appointment of County Director, B.R.C.S., of Carnarvonshire, of which county he was a justice of the peace. For his services in connexion with the Red Cross he received the O.B.E. (Civil).

Medical Diary for the ensuing Week.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

Wednesday, June 4th.

LAST SOCIAL EVENING OF THE SEASON: at 8.30 P.M.
Conversation in Library, light refreshments and smoking.
At 9 P.M., Mr. Cairns Forsyth: Hospital Work behind the Argonne and Verdun.
All Medical Officers, including Allies, are cordially invited.

MEETINGS OF SECTIONS.

Wednesday, June 4th.

OPHTHALMOLOGY (Hon. Secretaries—Leslie Paton, Malcolm Hepburn): at 8.30 P.M. (Cases, 8 P.M.)
Annual Meeting.—Election of Officers and Council for 1919-1920.
Papers:
Mr. E. M. Eaton: Visual Perception of Solid Forms.
Dr. Rayner Batten: The Need of Ophthalmic Physicians for the Advancement of Ophthalmology.

Thursday, June 5th.

OBSTETRICS AND GYNÆCOLOGY (Hon. Secretaries—Comyns Berkeley, J. S. Fairbairn): at 8 P.M.
Paper:
Dr. Russell Andrews: Severe Retro-peritoneal Hæmorrhage after Dilatation of the Cervix, treated by Blood Infusion.
Epidiascope Demonstration:
Dr. Eardley Holland: On Syphilitic Placentæ.
Specimens will be shown by:—
Mr. Stevens: Sub-peritoneal Lipoma (17 pounds).
Dr. Griffith: Sub-peritoneal Fibro-Lipoma (13 pounds).
Mr. Gordon Ley: Rhabdo-myo-sarcoma of the Vulva.

Friday, June 6th.

LARYNGOLOGY (Hon. Secretaries—Frank A. Rose, Irwin Moore): at 4 P.M.
Cases and Specimens will be shown by:—
Mr. E. D. D. Davis Mr. Harmer, Dr. William Hill, Dr. Jobson Horne, Mr. Mollison, Dr. Irwin Moore, Mr. Norman Patterson, Mr. Herbert Tilley.

NOTICE: WHITSUN HOLIDAYS.

The Library and Offices of the Society will be closed from Saturday, June 7th, to Monday, June 9th (both days inclusive).

The Royal Society of Medicine keeps open house for medical officers of all the Allied Forces, and invites them to make free use of its library and rooms. The Emergency Post Graduate Scheme, under the charge of the "Fellowship of Medicine," is also open to all medical officers. Particulars of this will be supplied by the Secretary, Fellowship of Medicine, 1, Wimpole-street, London, W. 1.

WEST LONDON MEDICO-CHIRURGICAL SOCIETY, West London Hospital, Hammersmith-road, W.

FRIDAY, June 6th.—8.30 P.M., Paper:—Dr. R. Lloyd: Neuro-vascular Storms: Some Associated Nervous and Circulatory Symptoms, with Cases.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

LONDON HOSPITAL MEDICAL COLLEGE.

A Special Course of Instruction in the Surgical Dyspepsias will be given at the Hospital by Mr. A. J. Walton. Lectures, given in the Clinical Theatre:—

MONDAY, June 2nd.—1 P.M., Lecture XXIV.:—Visceroptosis and Appendix Dyspepsia.

FRIDAY.—10 A.M., Lecture XXV.:—The Differential Diagnosis of Surgical Dyspepsia.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton, S.W.

WEDNESDAY, June 4th.—4.30 P.M., Lecture:—Dr. D. Grant: The Treatment of Tuberculosis of the Larynx.

CHADWICK PUBLIC LECTURES, at the Barnes Hall, Royal Society of Medicine, 1, Wimpole-street, Cavendish-square, W.

Three Lectures on the Problem of Hygiene in Egypt.

THURSDAY, June 5th.—3 P.M., Lecture III.:—Lieut.-Col. A. Balfour, R.A.M.C., C.B., C.M.G.: The Solution of the Problem, Present and Future.

Appointments.

Successful applicants for vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

ATKIN, C. SYDNEY, M.R.C.S., L.R.C.P. Lond., and MORLET, J., M.B., B.S. Melb., have been appointed House Surgeons at the Great Northern Central Hospital.

DE COURCY, T. LOUIS, M.D. Du.b, Ophthalmic Surgeon to Southport General Infirmary and Assistant Ophthalmic Surgeon to Liverpool Eye and Ear Infirmary.

GEE, C. W., L.R.C.P. & S. Edin., L.F.P.S. Glasg., Assistant Medical Officer of Health at Burnley.

REDDING, J. MAGNUS, M.R.C.S., L.R.C.P. Lond., Senior Surgical Radiographer to Guy's Hospital.

Certifying Surgeons under the Factory and Workshop Acts:—PATCHETT, R. T. A., L.R.C.P. & S. Edin., L.F.P.S. Glasg. (Longton); MILLS, O., M.R.C.S., L.R.C.P. Lond. (Honiton); TURNER, A. J., M.B., B.S. Durh. (Uxbridge); PHILLIPS, E. A. J. (Caerleon).

Vacancies.

For further information refer to the advertisement columns.

Aberdeen University.—Lecturer in Pathology. £700.
Abergavenny, Monmouthshire Asylum.—Jun. Asst. M.O. £300.
Ashford, Grosvenor Sanatorium.—Res. Asst. M.O. £250.
Ashford, Middlesex, West London District Schools.—M.O. £200.
Barry Urban District Council, Accident and Surgical Hospital.—S. £660.
Bedford County Hospital.—H.P. £150.
Belfast Municipal Sanatorium, Whiteabbey.—Res. Med. Supt. £500.
Belgrade Scottish Women's Hospital.—Female X ray Operator.
Birkenhead County Borough.—M.O.H. £1000.
Birmingham University.—Demonstrator of Anatomy. £250.
Bradford, Child-Welfare Work.—Female Asst. M.O. £400.
Bradford Children's Hospital.—H.S. £200.
Brighton, Royal Sussex County Hospital.—Hon. Oph. S., Hon. Med. Clin. Asst., and Hon. Surg. Clin. Asst.
Bristol General Hospital.—H.P. £175.
Bristol Royal Hospital for Sick Children and Women.—H.P. and H.S. £150.
Bristol University.—Professor of Physiology. £800.
Brixton Dispensary, Water-lane, S.W.—Res. M.O. £200.
Cambridgeshire County Council.—Female Asst. County M.O.H. £500.
Cardiff, King Edward VII.'s Hospital.—Hon. S.
Cardiff, University College of South Wales and Monmouthshire.—Lecturer in Physiological Chemistry and Asst. Lecturer and Demonstrator in Physiology.
Central London Ophthalmic Hospital, Judd-street, W.C.—X Ray Officer. Also Rhinologist.
Chelsea Hospital for Women.—Anæsthetist. £42.
Chesterfield and North Derbyshire Royal Hospital. Jun. H.S. £250.
City of London Hospital for Diseases of the Chest, Victoria Park, E.—Res. M.O. £250.
Cornwall Education Committee.—Three Asst. Sch. M.O. £400.
Croydon County Borough.—M.O. for Maternity and Child Welfare. £400.
Downpatrick, Down District Asylum.—Second Asst. M.O. £250.
Guildford, Royal Surrey County Hospital.—H.S.
Hongkong University.—Professor of Pathology. £600.
Hôpital Français, Shaftesbury-avenue, W.C.—Surgeons, Physicians, Ophthalmic Surgeon, and Honorary Radiographer.
Ipswich, County of East Suffolk.—Asst. to M.O.H. £45C.
Isle of Man, Asylums Board Lunatic Asylum.—Med. Supt. £600.
King's College for Women, Campden Hill-road, W.—Asst. Lecturer in Hygiene. £350.
Kingston-upon-Hull City and County.—Res. M.O. £400.
Lambeth Metropolitan Borough.—Tuber. Officer. £600.
Leeds Public Dispensary.—Res. M.O. £270.
Lewisham Municipal Antenatal and Child Welfare Clinic, Catford, S.E.—Med. Prac.
Lincolnshire, Lindsey County Council.—Asst. County M.O.H.'s. £450. Also Dentists. £350.
Liverpool Education Committee.—Two Asst. Sch. M.O.'s £350.
Liverpool Infirmary for Children.—Two Res. H.P.'s and Res. H.S. £30.
London County Council.—Organisers Phys. Education. £600.
London Homœopathic Hospital, Great Ormond-street, and Queen-square, Bloomsbury, W.C.—Asst. P. for Diseases of Women.
London Temperance Hospital, Hampstead-road, N.W.—Med. and Surg. Registrars. 40 gns. Also Cas. Officer. £120.
Marlborough College, Wilts.—Res. M.O.
Merthyr Tydfil County Borough.—Asst. Sch. M.O. and Asst. M.O.H. £500.
Middlesbrough, North Ormesby Hospital.—Asst. H.S. £175. Also H.S. £250.
Middlesbrough, North Riding Infirmary.—Hon. P. and Hon. Asst. Surg.
Miller General Hospital, Greenwich-road, S.E.—Hon. S.
Nottingham General Hospital.—H.S. and Cas. H.S. £250.
Oxford University, Department of Human Anatomy.—Demonstrator. £400.
Perth District Asylum, Murthly.—Asst. M.O. £300.
Portsmouth Royal Hospital.—Third H.S. £150.
Queen's Hospital for Children, Hackney-road, Bethnal Green, E.—H.P. £100.
Queen Mary's Hospital for the East End, Stratford, E.—Res. M.O.
Renfrew County Council.—County M.O. £900.
Richmond (Surrey) Borough and the Heston and Isleworth Urban District.—Med. Supt. £200.
Royal Chest Hospital, City-road, E.C., Tuberculosis Dispensary.—Asst. M.O. £350.
Royal Free Hospital, Gray's Inn-road, W.C.—Hon. Anæsth.
Royal Waterloo Hospital for Children and Women, S.E.—Second Female Res. M.O. £150. Also Hon. Physician and Radiographer.
Royal Westminster Ophthalmic Hospital.—H.S. £75.
St. Mary's Hospital, Paddington, W.—Cas. P. £100. Also P.
St. Pancras, South Infirmary, Pancras-road, N.W.—Female Asst. M.O. £300.
Salop County Council.—Medical Inspection and Treatment of School Children, Maternity and Child Welfare. Six Appointments. £450.
Sheffield Royal Hospital.—Asst. H.P. £120.
Sheffield Royal Infirmary.—H.S. £150. Also H.S. for Ear, Nose, and Throat. £150.
Southampton, Free Eye Hospital.—Hon. Consulting Physician and Hon. Consulting Surgeon.
South Shields County Borough.—Asst. M.O. £500.
Stepney and Mile-End Tuberculosis Dispensary.—Asst. Tubere. O. £350.
Stoke-on-Trent County Borough Education Committee.—Male and Female Asst. Sch. M.O.s. £400. Also Sch. Dentist. £300.
Swansea Borough Council.—Asst. M.O.'s. £450.
University College Hospital, Gower-street, W.C.—Hon. Anæsth.
Ventnor, Isle of Wight, Royal National Hospital for Consumption and Diseases of the Chest.—Two Asst. Res. M.O. £200.
Victoria Hospital for Children, Tite-street, Chelsea.—Three Surgeons, Ophthal. S., and Dent. S.
Wakefield General Hospital.—H.S. £200.
Wakefield, West Riding County Council.—Sch. Oculist. £450.
Wandsworth Union.—District M.O. £100.

Warwickshire County Council.—Asst. County M.O.H. £500.
Western Ophthalmic Hospital, Marylebone-road, N.W.—Asst. Surg.
Wigan Infirmary.—Hon. Pathologist and Bacteriologist.
Wolverhampton and Staffordshire General Hospital.—Two H.S.'s. £200.
Woolwich Metropolitan Borough.—M.O.H. £800.
Wrexham Infirmary.—H.S.
York City.—Tuberc. O. and Deputy M.O.H. £600.
Yorkshire, North Riding.—County M.O. £850.

THE Chief Inspector of Factories, Home Office, S.W., gives notice of a vacancy for a Certifying Surgeon under the Factory and Workshop Acts at Maryborough, Queen's County.

Births, Marriages, and Deaths.

BIRTHS.

HAY.—On May 25th, at Hill-street, Berkeley-square, W., the wife of Dr. K. R. Hay, of a daughter.

MARRIAGES.

BEATTY—DESPARD.—On May 22nd, at St. Bartholomew's, Sydenham, Captain Cyril C. Beatty, M.C., R.A.M.C., to Constance Hermine, only daughter of the Rev. A. V. and Mrs. Despard, of Vernon, B.C.

DAKERS—NICHOLSON DAKERS.—On May 20th, by special licence, Surgeon-Lieutenant B. W. Dakers, R.N., to Margaret McNeicht, youngest daughter of the late John Ross Nicholson, of Barns, Ayr, N.B.

JOHNSTONE—PACEY.—On May 21st, at Richmond, Surrey, Captain William Johnstone, R.A.M.C., T.F., to Margaret Pacey, of Iviedene, Barnes.

DEATHS.

DENNANT.—On May 24th, at Denmark-villas, Hove, John Dennant, L.D.S. Eng., aged 85.

HEFFERNAN.—On May 18th, 1919, at Seskin, Clonmel, Co. Tipperary, Ireland, Lieutenant-Colonel W. Heffernan, late R.A.M.C., aged 62 years.

JAFFREY.—On May 20th, at Cliff Lawn, Fowey, Francis Jaffrey, F.R.C.S., Consulting Surgeon, St. George's Hospital, aged 59.

MCLEARN.—On May 19th, at Southwood Lodge, Highgate, suddenly, Isaac Crawford McLearn, M.D., M.R.C.S., for 31 years Medical Superintendent, Holborn Infirmary.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

BOOKS, ETC., RECEIVED.

LONGMANS, GREEN, AND CO., London.
The Control of the Drink Trade in Britain. By H. Carter, with Preface by Lord D'Abernon. 2nd ed. Pp. 343. 2s. 6d., cloth limp; 4s. 6d. cloth boards.

MACMILLAN AND CO., London and New York.
Text-book of Embryology. Vol. II.: Vertebrata with the exception of Mammalia. By J. Graham Kerr. Pp. 591. 31s. 6d.
Criminology. By M. Parmelee. Pp. 522. 10s. 6d.
The Mastery of Nervousness. By R. S. Carroll, M.D. Pp. 348. 10s. 6d.

MASSON ET CIE., Paris.
Diagnostic Clinique, Examens et Symptômes. Par le Docteur Alfred Martinet, avec la collaboration pour quelques chapitres des Drs. G. Laurens, Lutier, Léon Meunier, et St. Cêne. 30 fr. (+10 %).
Le Choléra. Par H. Violle, de l'Institut Pasteur. Préface de E. Roux. 20 fr. (+10 %).
Recherches récentes sur les Ictères. Par le Dr. M. Brûlé, Ancien interne des hôpitaux, chef de Laboratoire à la Faculté de Médecine de Paris. Pp. 132. 4 fr. 50. (+ 10 %).
Le Français enseigné par la Méthode Intuitive et Directe par P. Dessagnes. Pp. 304. 5 fr.

PALMER, CECIL, AND HAYWARD, Bloomsbury-street, W.C. 1., New York, Melbourne, Toronto, Capetown, and Paris.
Brushes with the Bishops: A Blue Book. By "Besma." Pp. 208. 3s. 6d.

SAUNDERS (W. B.), London and Philadelphia.
A Manual of Diseases of the Nose, Throat, and Ear. By E. B. Gleason, M.D. 4th. ed., thoroughly revised. Pp. 616. 14s.
A Text-book of Physiology. By William H. Howell, M.D. 7th ed., thoroughly revised. Pp. 1059. 21s.
Clinical Microscopy and Chemistry. By F. A. McJunkin, M.D. Pp. 470. 16s.
Pathological Technique: A Practical Manual for Workers in Pathologic Histology and Bacteriology. Including Directions for the performance of Autopsies and for Clinical Diagnosis by Laboratory Methods. By F. B. Mallory, M.D., and J. B. Wright, M.D. 7th ed., revised and enlarged. Pp. 555. 17s.

WATTS AND CO., London.
Spirit Experiences: The Conversion of a Sceptic: By C. A. Mercier, M.D. Pp. 54. 9d.

WILLIAMS AND NORGATE, London.
Life of Matter. Edited by A. Turnbull, M.B. Pp. 324. 7s. 6d.

THE death is announced of Dr. Clifford Luxmoore Drew, coroner for the Western District of the County of London, and past-president of the Coroners' Society of England and Wales.

PLYMOUTH MATERNITY HOME.—A maternity home in connexion with the Three Towns Nursing Institution was recently formally opened by Lady Henniker Hughan. The Home has been secured largely by the exertions of Dr. Hogarth Clay, and will receive assistance from the Local Government Board.

Notes, Short Comments, and Answers to Correspondents.

LARREY AND WAR SURGERY.

By WALTER G. SPENCER, M.B., M.S., F.R.C.S.,
SURGEON TO THE WESTMINSTER HOSPITAL.

PART III.

The Russian Campaign.

General Zagonscheck, a Polish officer in the French service, nearly 80 years of age, had crossed the Bérésina when a cannon-ball smashed his right knee and ruptured the popliteal artery. Larrey was called by the Emperor to the spot, and there under the enemy's fire, kneeling in the snow, whilst the thermometer he carried marked − 16° R. (− 4° F.) and the snow fell so quickly in six-rayed stars that two general officers had to hold a cloak over both surgeons and patient, Larrey amputated through the thigh. When his assistant was tightening the ligature round the artery, it cut through owing to the artery being calcified, so he tied the artery higher up over a small roll of linen. After drawing the skin together by fenestrated strips of linen and applying a bandage, the patient was sent off to Vilna in a sledge and thence to Warsaw, where he healed well and lived to be 86 or 87.[1]

Larrey's Immediate Amputation at the Hip-Joint.

Larrey's method of amputating at the hip-joint was first to ligature the common femoral artery and vein through an incision immediately below Poupart's ligament. But he said that if he had a reliable assistant to compress the artery he would take off the limb first and then tie the superficial and profunda vessels separately. Next he rapidly cut an internal adductor flap and at once tied the cut branches of the obturator and pubic arteries, then forcibly abducting the limb, he divided the capsule, forced out the head of the femur, carried the knife over the bone, and cut from within outwards an external flap, the sciatic vessels being tied as soon as divided.[2]

There is no part of Larrey's writings, a knowledge of which has been of greater value; I had not seen before gunshot compound comminuted fractures of the upper part of the femur involving the hip-joint, but recently I have been obliged after due consideration to perform secondary amputation at the hip-joint and I have followed strictly Larrey's method, as described above. Of eight such amputations done in King George Hospital, six healed or were healing when transferred.

Treatment of Fractures.[3]

Larrey aimed to fix the ends of the two fragments in apposition in such a way that the patient could move about and be readily transported. He therefore rejected the splints used in civil practice and substituted his fixed apparatus, "*l'appareil inamovible.*" It included (1) the immediate reduction of the displacement, the limb being then held in the reduced position by an assistant; (2) the limb was wrapped up in a sheet of stout linen or cloth of sufficient length and width; (3) this was stiffened on each side by "*fanons*," which he made of bundles of undamaged rye-straw bound tightly together by a spiral of string; (4) pads filled with oat-chaff to prevent pressure upon bony points; (5) a stiffening of the wrap with white of egg; (6) the edges of the wrap had tapes attached which were tied in bows. In the case of compound fractures a gap was formed in the wrap, and after the wound had been explored and cleaned a strip of perforated linen was laid over it which was not changed. But a pad of tow, kept in place by a many-tailed bandage, outside the apparatus fixing the fracture, was removed at each dressing and the outer surface of the perforated linen wiped.

As to extension, Larrey particularly opposed it for fractures of the neck of the femur, asserting that it drew the ends apart and led to non-union.

Infective Diseases.

Hospital gangrene was markedly contagious and might be inoculated upon a wound, even although well advanced towards healing. He compared the surface of the wound to the foul scum on a stagnant pond and it was often frothed up by gas. Instruments and dressings were frequently the means of conveying the contagion. The best remedy was the actual cautery applied deeply and over the whole extent of the wound. When this was done the wound soon became covered with granulations.

In the Egyptian campaign the medical officers were at first confused, for one reason because *plague* occurred with

[1] Campagnes, iv., 102. [2] Campagnes, ii., 186, iii., 848.
[3] Rel. Méd. de Campagnes et Voyages, 258, pln. ii.

pneumonia as well as in its *bubonic* form. In one plague hospital, within eight weeks, every hospital attendant, 3 physicians, 14 surgeons, and 11 apothecaries died. As for the hospital orderlies or *infirmiers* they were nearly all criminals and foreigners, who having escaped from the galleys in Italy were drawn to the hospital work by the prospect of robbing the sick. By the end of the siege of Acre most of them were ill or dead. Larrey was soon able to draw up some excellent rules for the medical officers. When entering the hospital he was to put on a linen overall damped with vinegar and water, this included a covering for the head and a mask. Also he was to put on sandals or sabots which had been dipped in solutions of turpentine or spirit. He should wash his hands and dip them in vinegar and water before operating, and on leaving he should wash his hands and any other exposed part. His linen overall should be washed and placed in the open air, also his shoes and his instruments, after washing these with brandy. Food and open windows for the patients, food and exercise for the medical officers, and isolation of infected cases much reduced the disease.

Flies.—Open wounds tended to become flyblown, and this was especially the case during the siege of Acre, when maggots as large as quills were picked out at every dressing. Larrey noted that the maggots by preference attacked sloughing tissues, and soon devoured such material. I recently met with this casual confirmation by an Austrian surgeon. He had left two cases of gas gangrene to themselves because their condition appeared hopeless and there were other cases demanding attention. When after four days the two men were not only alive but improving, their first-aid dressings were removed. The wounds were found full of maggots, which had consumed the gangrenous sloughs. Both patients recovered after amputation.[4]

Larrey's Predilection for Wet Cupping and the Moxa.

In his practice of minor surgery Larrey set great store by wet cupping and the moxa—some of his applications appear good; in some he was mistaken, and in others the patients were troubled unnecessarily. He used moxas imported from China or made them of cotton, and held them against the skin in a porte-moxa[5] until only ash remained; if a deep effect was required the burning was stimulated by a blowpipe; after this a solution of ammonia was applied. Larrey records a number of cases in young soldiers exhausted by campaigning. They were the cases which have been recently described under the term war neuroses. At any rate, there were rapid recoveries in many spinal cases, after multiple cuppings and moxas applied over the back.

This remedy was employed also for *acute inflammations of joints*. General Lepic sent for Larrey at midnight before the battle of Eylau. He had such an acute attack of gout in both knees that he could not move, and was in despair that he should not be able to mount his horse the next day. Larrey scarified and cupped both knees in several places, then bandaged them firmly in a dressing wetted with lead lotion. Lepic was able to mount his horse in the morning, and his charge at the head of his cavalry was one of the most notable feats of the day.

Larrey's Last Public Action.

In 1842, when aged 76, Larrey was sent to Algeria, where there had been serious trouble among the young conscripts, forced upon a foreign service without adequate pay. The military had, unfortunately, borrowed from Oriental barbarism, the pits or silos in which the recruits were buried up to their necks, and the stocks or crapadines. Larrey declared to the military officers that such punishments dishonoured humanity; punishments out of proportion to the faults only hardened the hearts of undisciplined soldiers. There were germs of good which fostered might transform the most rebellious and give birth to heroes. This address deeply impressed General Ambert, then a lieutenant, who recorded it long after.[6] On this journey Larrey suffered for the first time from fatigue; on landing in France he heard of the illness of his wife, and so hurried on travelling by night as well as by day. But he developed pneumonia, and on arriving at Lyons died on July 25th, 1842, his wife dying in Paris a few days before him.

When a complete edition of Larrey's writings is published, including the rest of his unpublished diaries and all his reports preserved in the French Archives, it will become established that of all past surgeons none has been more distinguished in military surgery than has Domenique Larrey.

MODEL HOMES EXHIBITION.

THIS exhibition, which was opened by Mrs. Lloyd George at the Central Hall, Westminster, on May 19th, will remain open until June 14th. Models, in colour, of houses, some of them illustrating the designs approved by the Local Government Board, and others, the designs of amateur contributors, are to be seen in the centre of the hall. There are also, around the walls and in the basement, stalls advertising various housing accessories from table linen to chimney-pots, which in many cases introduce useful economies of space or of labour. New ideas are perhaps rather scarce, but old ideas have been improved on and their products brought within the range of those with moderate means. There are, for example, two new kinds of "vacuum cleaner" which are neither costly nor cumbersome, and being simple in construction they should also be durable. The problem of economising coal has exercised the ingenuity of several advertisers. What is perhaps the simplest and most attractive method has been devised by the Guildford Hot Water, Stove, and Range Company, who have applied the ordinary system of boiler tubes as used in a steam engine to the domestic fireplace. It is claimed on their behalf that, with a single anthracite fire which serves both kitchen and living room, hot water can be produced to heat any number of rooms to reasonable temperature at a cost of less than 2d. a day for each additional room. Those who are anxious to have dust-free corners in their houses will be interested in the exhibit of cornerettes, an inexpensive device which effectually makes square corners round.

THE CHILDREN OF DEVASTATED SERBIA.

To the Editor of THE LANCET.

SIR,—May I again, through the medium of your paper, invoke the assistance of the generous British public on behalf of my country? The Serbian Red Cross Society in Great Britain is continuing the valuable work which it did throughout the war, and is arranging to provide very necessary wayside dispensaries in Serbia, Jugo-Slavia. It must not be forgotten that Serbia alone has lost one-fourth of her total population. The economic conditions are still terrible; clothes are practically unobtainable owing to their prohibitive prices, soap is almost unknown, groceries are scarce, and starvation and disease menace the country. There are at least 200,000 children in Serbia to be maintained and educated.

The young children have been divided into two classes—those with mothers or living relatives and those who are orphans. In the first class every effort is made to keep the family together. The payment of a small allowance for a child often enables the mother to remain on her little farm, where she will, in time, become once more self-supporting, while the child enjoys the benefits of home life. The condition of the children is the most striking evidence of the misery in the whole civil population. Large numbers of children are in rags, anæmic, and tubercular.

The council of the society has accepted the generous offer of Canon E. Sidney Savage, who has just returned from Serbia, to make known the needs of the orphans there, and he will gladly attend any meeting organised for this purpose.

The Serbian Government cannot finance the whole expense in providing for the orphans, and the Serbian Red Cross Society in Great Britain seeks to supplement the Government's efforts on behalf of the orphans. Clothing, boots, medicaments, and hospital supplies of all kinds are urgently needed for the Serbian repatriated prisoners of war and civilians from the internment camps of Austria and Bulgaria, who include large numbers of children, many of whom are still half-naked and starved as the result of the terrible hardships to which they were subjected. Contributions and gifts in kind will be gratefully acknowledged by the Serbian Red Cross Society in Great Britain, 9, Ennismore-gardens, London, S.W.7. I am, Sir, yours faithfully,

YOVAN YOVANOVITCH,
President, the Serbian Red Cross Society in Great Britain.
9, Ennismore-gardens, London, S.W.7, May 22nd, 1919.

A FREAK OF NATURE.

WE have received a communication from Dr. Marie Stopes, pointing out that the well-known Red Crag Shell, to which allusion was made in these columns recently, was not discovered by her but by her father. She writes:—

The famous Red Crag Shell was *not* discovered by me ..... but was brought before the scientific world by my father, Henry Stopes, the archæologist, something like 40 years ago. (See Brit. Assn. Rep., 1881). In those days clerical influence dominated terrestrial chronology, and that he should claim, as he then did, the existence of very early man (which is now all but universally acknowledged to be the truth) was then considered profoundly reprehensible and irreligious, and he and his work, being so far in advance of the day, were stamped with a disapproval still lingering, though its cause no longer exists now that humanity has caught up to his advanced opinions. I, his companion all my life, knowing that he died prematurely before publishing the data which he had laboriously accumulated, published some short additions to the literature on the Shell and illustrated it. (Geol. Mag., 1912, p. 95 and p. 285; Proc. Prehist. Soc. E. Anglia, vol. i., pt. 3, p. 325, pl. lxxiii.).

[4] Schiller in Verhandlungen d. Feldartzlichentagung Lemberg. February, 1917, Zuckerkandl u. Molóovan (editors) Wien u. Leipsig, Braunmüller, 1917. [5] Campagnes, i., pl. 1.
[6] Le Baron Larrey, par le Général Ambert, Cossé Edit., Paris, 1863.

SOCIETY FOR RELIEF OF WIDOWS AND ORPHANS OF MEDICAL MEN.

THE annual general meeting of this society was held at 11, Chandos-street, London, W., on May 15th, Sir Alfred Pearce Gould, President, being in the chair. From the report for the year 1918 it was seen that the invested funds of the society now amount to £144,250. The sum of £4288 5s. was distributed amongst the widows and orphans in receipt of grants. The expenses of the year were £273 9s. Attention was drawn at the meeting to the difficulty of getting new members; at the present time the society consists of 159 life and 132 ordinary members, which, considering the number of medical men eligible for membership, is but a very small proportion. Membership is open to any registered medical practitioner who at the time of his election is resident within a 20 mile radius of Charing Cross. The annual subscription for a member who at the time of his election is under 40 years of age is £2 2s., if over 40 but under 50 £3 3s., and if over 50 £4 4s. There are special terms for life membership. Relief is only granted to the widows and orphans of deceased members. A widow of a member who is left with an income of £100 per annum or under as a rule receives from the society a grant at the rate of £50 per annum from the ordinary funds and one of either £10 or £25 per annum from the special funds according to her age, in addition a Christmas present of £10 is usually made to each widow. The grant to an orphan from both ordinary funds and special as a rule amounts to £43 per annum. The advantages of joining the society cannot be too strongly urged on members of the profession, for the society is both a provident and beneficent one, and should a member die and leave his widow well provided for he nevertheless by his subscriptions will have helped the widow and orphans of a necessitous fellow practitioner. The invested funds of the society can never be touched and only the income derived from such funds may be used for the payment of grants. All life subscriptions and legacies have to be funded. Further particulars of the society may be obtained from the secretary at the offices of the society, 11, Chandos-street, Cavendish-square, W.1.

THE CASE OF A BLIND SUBJECT.

To the Editor of THE LANCET.

SIR,—In reply to "M.D." who seeks a home for a blind gentleman, I suggest that he may possibly like to communicate with two men who are instituting an experimental community on a basis of reason and altruism. He would be under the same obligation as others to contribute his best endeavour to the common welfare, and to submit to a strict though limited discipline, and he would enjoy such amenities as might be available for internal use.

It is, of course, obvious that a high standard of comfort will be for a long time impossible, since the free inclusion of those who will tend to consume more than they can contribute will necessarily continue; and unless the patient is troubled more by the lack of responsible employment than by the loss of his sight it is probable that it will not be worth his while to reply to this letter.

I am, Sir, yours faithfully,

J. NORMAN GLAISTER.

Weir Cottage, Chertsey, Surrey, May 23rd, 1919.

AN INTERESTING EXPERIMENT IN THE REARING OF CALVES ON WHEY AND MEALS.

IN the spring of 1918 the Board of Agriculture and Fisheries decided to introduce experiments with the view of determining whether cheese whey, supplemented by the addition of certain nutritive materials, could be used in the successful rearing of calves. The results of an interesting series of experiments are now published, and at the outset consideration was given primarily to the differences in composition between whole milk and whey. It is well known that compared with whole milk, the natural food of calves, whey is chiefly deficient in fat and proteins, these being withdrawn in cheese-making. It was calculated that in order to bring up the feeding value of one gallon of whey to that of one gallon of whole milk an addition of ½ lb. of fat or oil and ¼ lb. of protein was necessary, and the deficiency in mineral salts was made up by adding phosphate of lime. It was also found necessary to correct any undue acidity of the whey by means of chalk. The materials subsequently chosen as "cheese substitutes," so to speak, were variable mixtures, containing one or more of the following: cod-liver meal, fish meal, linseed meal, linseed cake meal, cocoanut meal, oatmeal, and bean meal. Cod-liver meal was abandoned early in the experiments as it proved unpalatable to the calves. In each case 1 lb. of meal was added to one gallon of whey until towards the end of the experiment, when the proportion of meal was reduced. The transition from milk to whey was made gradually and completed in the course of a fortnight, so that by the time the calves were four weeks old they were kept entirely on the whey and meal diet, and from that stage onwards hay was placed at their disposal. No trouble throughout was experienced in securing satisfactory food consumption, and all the calves showed by appearance and weight records a healthy condition of growth. Bean-meal mixtures appeared to give rather better results than others. The leaflet concludes with a practical summary giving the results of these experiments, which justify the laying down of certain directions for those who may wish to rear calves on whey and meals. The cost of the materials is also given. The Board express their indebtedness to the authorities of University College, Reading, for the facilities provided for the experiments, and to Mr. S. Pennington, F.R.C.V.S., whose expert supervision contributed so materially to their success.

THE SUPPLY OF DRUGS.

A JOINT committee, representing the insurance, panel, and pharmaceutical committees, has been appointed to deal with the early closing of chemists' shops, and to provide facilities for dispensing urgent prescriptions after 8 P.M. A review of the complaint cases dealt with by the Pharmaceutical Service Subcommittee has compelled the committee to come to the conclusion that the decisions of that committee do not help towards a mitigation of the difficulties experienced by insured persons in obtaining drugs and appliances. The number of complaints with regard to delay in dispensing medicines, short measure, inferior quality of drugs, &c., and in some cases rudeness on the part of chemists and their assistants, has led the committee to press on the Insurance Commissioners and the Insurance Committee the view that "some revision of the method of supplying drugs and appliances is urgently necessary."

X. Y. Z.—It is impossible to state categorically the current rate of remuneration for assistants in private practice at the present time, as so much depends on duties and locality. Speaking generally, the salary is at the rate of £400 to £450 indoor and £500 and upwards outdoor. Few men are now willing to go as assistants at all. They prefer locum tenens work at 8 guineas a week and all found.

Ex-Medico asks whether any reader can recommend to him a sanatorium, convalescent home, or quiet country hotel in the south-west of England for a few weeks' stay under the following circumstances. He suffers from empyema and bronchial asthma, desires to sit in the sun and take drives, and requires a bedroom on the ground floor. His wife would accompany him.

Communications, Letters, &c., to the Editor have been received from—

A.—Mr. H. H. Armstrong, Olney; Capt. R. A. Anderson, R.A.M.C.

B.—Mr. V. Bonney, Lond.; Major-Gen. Sir David Bruce, K.C.B., A.M.S., Lond.; Mr. E. A. Barton, Lond.; Lt.-Col. A. Balfour, C.B., C.M.G., R.A.M.C.; Mr. F. C. Bartlett, Cambridge; Boys' Welfare Association, Lond., Director of.

C.—Dr. E. M. Cowell, D.S.O., Lond.; Chicago School of Sanitary Instruction; Dr. F. G. Crookshank, Lond.; Capt. H. L. Cronk, R.A.M.C.; Chadwick Trust, Lond., Sec. of; Dr. E. L. Collis; Mr. R. H. Chandler; Dr. P. J. Cammidge, Lond.

D.—Dalhousie University, Halifax, Faculty of Medicine, Dean of.

E.—Dr. C. Engelbreth, Lond.; Ex Medico; Mr. D. L. Eadie, Edinburgh.

F.—Factories, Chief Inspector of, Lond.; Mr. C. Fitch, Lond.; Mr. C. E. S. Flemming, Bradford-on-Avon.

G—Great Northern Central Hospital, Lond.; Bt.-Major A. H. Gosse, R.A.M.C.(T); Gibraltar, Sanitary Commissioner of; Sir Kenneth Goadby, K.B.E., Lond.; Mr. J. N. Glaister, Chertsey.

H.—Dr. J. Haddon, Hawick; Mr. R. K. Hodgson, Lond.; Mr. J. F. Hosken, Lond.

J.—*Journal of Dairy Science*, Baltimore; Mr. J. A. Jones, Manchester.

K.—Prof. R. Kennedy, Glasgow.

L.—Dr. E. Lowry, Lond.; Prof. J. N. Langley, Cambridge; Local Government Board, Lond., Sec. of.

M.—Mr. P. A. McKay, Clydebank; Medical Research Committee, Lond.; Dr. H. M. McCrae, Lond.; Mr. T. McLean, Lond.; Miss E. Mackinnon, Tunbridge Wells; Major A. Macdonald, R.A.M.C.

N.—New Zealand, Minister of Public Health, Wellington.

O.—Mr. H. C. Orrin, Lond.

P.—Dr. E. E. Prest, Glenafton; Mr. H. Platt, Manchester.

R.—Royal Institution of Great Britain, Lond.; Lt.-Col. H. B. Roderick, R.A.M.C.(T); Dr. J. D. Rolleston, Lond.; Rontgen Society, Lond.; Dr. G. E. Shuttleworth, Lond.; Royal Sanitary Institute, Lond.

S.—Mrs. W. A. Sturdy, Lond.; Dr. E. Smith, Lond.; Dr. H. H. Sanguinetti, Lond.; Prof. G. E. Smith, Lond.; Dr. R. E. Smith, Plymouth; Dr. G. Steele-Perkins, Lond.; Dr. A. G. Shera, Eastbourne; Dr. W. C. Sullivan, Lond.; Dr. M. B. Shipsey, Birmingham; Society for Relief of Widows and Orphans of Medical Men, Lond.; Serbian Red Cross Society in Great Britain, Lond., Chairman of; Society for the State Registration of Trained Nurses, Lond., Hon. Sec. of.

T.—Dr. W. W. C. Topley, Lond.; Dr. F. E. Taylor, Lond.; Messrs. J. Tucker and Co., Lond.; Dr. J. Tatham, Oxted.

W.—Dr. W. H. Willcox, C.B., C.M.G., Lond.; Sir William Whitla, M.P., Belfast; Dr. J. A. Wilson, Warrington.

Y.—Prof. Yamanouchi, Tokyo; Dr. R. A. Young, Lond.

Communications relating to editorial business should be addressed exclusively to the Editor of THE LANCET, 423, Strand, London, W.C. 2.